

Human Physiology, 15e (Fox)

Chapter 6 Interactions Between Cells and the Extracellular Environment

1) Eighty percent of the extracellular fluid is termed as interstitial fluid.

Answer: TRUE

Section: 06.01

Topic: Intracellular organization; Introduction to body fluids and fluid compartments

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: Q02.01 Describe the fluid compartments (including the subdivisions of the extracellular fluid) and state the relative volumes of each.

2) Interstitial fluid is made from blood plasma and returns to blood plasma.

Answer: TRUE

Section: 06.01

Topic: Intracellular organization; Introduction to body fluids and fluid compartments;

Composition of blood plasma

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: Q02.01 Describe the fluid compartments (including the subdivisions of the extracellular fluid) and state the relative volumes of each.

3) How much of the total body water content is in the intracellular compartment?

A) 50%

B) 67%

C) 33%

D) 80%

Answer: B

Section: 06.01

Topic: Intracellular organization; Introduction to body fluids and fluid compartments

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: Q02.01 Describe the fluid compartments (including the subdivisions of the extracellular fluid) and state the relative volumes of each.

- 4) The majority of water within the body is found in the _____.
- A) intracellular compartment
 - B) extracellular compartment
 - C) blood plasma
 - D) interstitial fluid

Answer: A

Section: 06.01

Topic: Intracellular organization; Introduction to body fluids and fluid compartments

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: Q02.01 Describe the fluid compartments (including the subdivisions of the extracellular fluid) and state the relative volumes of each.

- 5) How much of the extracellular fluid comes from blood plasma?
- A) 33%
 - B) 92%
 - C) 20%
 - D) 50%

Answer: C

Section: 06.01

Topic: Introduction to body fluids and fluid compartments; Composition of blood plasma

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: Q02.01 Describe the fluid compartments (including the subdivisions of the extracellular fluid) and state the relative volumes of each.

- 6) What cofactor do matrix metalloproteinases need to be functional?
- A) Calcium
 - B) Copper
 - C) Chromium
 - D) Zinc

Answer: D

Section: 06.01

Topic: Microscopic anatomy, location, and function of connective tissue

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: Q02.01 Describe the fluid compartments (including the subdivisions of the extracellular fluid) and state the relative volumes of each.

7) The class of glycoproteins which bind to components in the extracellular matrix, thereby acting as adhesion molecules between cells and the matrix are called _____.

- A) glycocalyxes
- B) aquaporins
- C) desmosomes
- D) integrins

Answer: D

Section: 06.01

Topic: Membrane structure and function

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: Q02.01 Describe the fluid compartments (including the subdivisions of the extracellular fluid) and state the relative volumes of each.

8) Matrix metalloproteinases _____.

- A) produce the basal lamina
- B) synthesize collagen in the extracellular matrix
- C) may be active in invasive cancer cells
- D) synthesize proteoglycans in the extracellular matrix

Answer: C

Section: 06.01

Topic: Clinical applications of homeostatic mechanisms of the cell; Microscopic anatomy, location, and function of connective tissue

Bloom's: 1. Remember; 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: Q02.01 Describe the fluid compartments (including the subdivisions of the extracellular fluid) and state the relative volumes of each.

9) Proteins that extend from the cytoskeleton within the cell, through the plasma membrane, and into the extracellular matrix are _____.

- A) lysosomal proteins
- B) transport proteins
- C) receptor proteins
- D) integrin proteins

Answer: D

Section: 06.01

Topic: Membrane structure and function

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: C07.03 Describe how proteins are distributed in a cell membrane, and explain their functions.

10) Which of the following is NOT a function of integrins?

- A) Glue components of the matrix
- B) Communicate between the intracellular and extracellular compartments
- C) Allow diffusion to occur through the plasma membrane
- D) Establish cell polarity

Answer: C

Section: 06.01

Topic: Membrane structure and function

Bloom's: 1. Remember; 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: C07.03 Describe how proteins are distributed in a cell membrane, and explain their functions.

11) What structures affect cell motility, adhesion, and proliferation?

- A) Basal lamina
- B) Integrins
- C) Collagen IV
- D) Proteoglycans

Answer: B

Section: 06.01

Topic: Membrane structure and function

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: C07.03 Describe how proteins are distributed in a cell membrane, and explain their functions.

12) Osmosis and simple diffusion do NOT require the actions of carrier proteins.

Answer: TRUE

Section: 06.01

Topic: Mechanisms for movement across cell membranes

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: C08.01b Describe the mechanism by which movement of material occurs in each membrane transport process -- simple diffusion, facilitated diffusion, osmosis, active transport, exocytosis, endocytosis, phagocytosis, pinocytosis, and filtration.

13) Active transport proceeds when energy is expended.

Answer: TRUE

Section: 06.01

Topic: Mechanisms for movement across cell membranes

Bloom's: 1. Remember; 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: C08.01c Discuss the energy requirements and, if applicable, the sources of energy for each process -- simple diffusion, facilitated diffusion, osmosis, active transport, exocytosis, endocytosis, phagocytosis, pinocytosis, and filtration.

14) A membrane that allows only certain molecules to pass through it is called _____.

A) selectively permeable

B) permeable

C) porous

D) countertransport

Answer: A

Section: 06.01

Topic: Mechanisms for movement across cell membranes

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: C08.01b Describe the mechanism by which movement of material occurs in each membrane transport process -- simple diffusion, facilitated diffusion, osmosis, active transport, exocytosis, endocytosis, phagocytosis, pinocytosis, and filtration.

15) Which of the following types of transport does not require?

A) Facilitated diffusion

B) Bulk

C) Simple diffusion

D) Active

Answer: C

Section: 06.01

Topic: Mechanisms for movement across cell membranes

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: C08.01b Describe the mechanism by which movement of material occurs in each membrane transport process -- simple diffusion, facilitated diffusion, osmosis, active transport, exocytosis, endocytosis, phagocytosis, pinocytosis, and filtration.

16) Passive transport of water is known as _____.

- A) filtration
- B) osmosis
- C) facilitated diffusion
- D) a water pump

Answer: B

Section: 06.01

Topic: Mechanisms for movement across cell membranes

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: C08.01a State the type of material moving in each of the membrane transport process -- simple diffusion, facilitated diffusion, osmosis, active transport, exocytosis, endocytosis, phagocytosis, pinocytosis, and filtration.

17) Active transport _____.

- A) utilizes energy
- B) cannot transport molecules against a concentration gradient
- C) cannot be saturated
- D) requires cofactors

Answer: A

Section: 06.01

Topic: Mechanisms for movement across cell membranes

Bloom's: 1. Remember; 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: C08.01c Discuss the energy requirements and, if applicable, the sources of energy for each process -- simple diffusion, facilitated diffusion, osmosis, active transport, exocytosis, endocytosis, phagocytosis, pinocytosis, and filtration.

18) Simple diffusion is the net diffusion of a solvent.

Answer: FALSE

Section: 06.02

Topic: Mechanisms for movement across cell membranes

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: C08.01b Describe the mechanism by which movement of material occurs in each membrane transport process -- simple diffusion, facilitated diffusion, osmosis, active transport, exocytosis, endocytosis, phagocytosis, pinocytosis, and filtration.

- 19) Diffusion _____ the entropy of a solution.
A) decreases
B) increases
C) does not change

Answer: B

Section: 06.02

Topic: Mechanisms for movement across cell membranes

Bloom's: 1. Remember; 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: C08.01b Describe the mechanism by which movement of material occurs in each membrane transport process -- simple diffusion, facilitated diffusion, osmosis, active transport, exocytosis, endocytosis, phagocytosis, pinocytosis, and filtration.

- 20) Why are cells in body organs generally within 100 μm of a blood capillary?
A) To decrease mean diffusion time
B) To increase mean diffusion time
C) So that larger particles can diffuse more easily
D) A larger distance maximizes entropy

Answer: A

Section: 06.02

Topic: Mechanisms for movement across cell membranes; Capillary exchange

Bloom's: 1. Remember; 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: C08.01b Describe the mechanism by which movement of material occurs in each membrane transport process -- simple diffusion, facilitated diffusion, osmosis, active transport, exocytosis, endocytosis, phagocytosis, pinocytosis, and filtration.

- 21) A solution consists of a _____ which dissolves the _____.
A) solvent, solute
B) solvent, solid
C) solute, solvent
D) liquid, solid

Answer: A

Section: 06.02

Topic: Inorganic compounds and solutions

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: C08.01b Describe the mechanism by which movement of material occurs in each membrane transport process -- simple diffusion, facilitated diffusion, osmosis, active transport, exocytosis, endocytosis, phagocytosis, pinocytosis, and filtration.

22) Dialysis uses the process of _____.

- A) facilitated diffusion
- B) primary active transport
- C) simple diffusion
- D) secondary active transport

Answer: C

Section: 06.02

Topic: Mechanisms for movement across cell membranes; Functional process of urine formation, including filtration, reabsorption, and secretion

Bloom's: 1. Remember; 3. Apply

Accessibility: Keyboard Navigation

HAPS Outcome: C08.01b Describe the mechanism by which movement of material occurs in each membrane transport process -- simple diffusion, facilitated diffusion, osmosis, active transport, exocytosis, endocytosis, phagocytosis, pinocytosis, and filtration.

23) Gas exchange between the cells and extracellular fluid utilizes active transport.

Answer: FALSE

Section: 06.02

Topic: Mechanisms for movement across cell membranes; Mechanisms of gas exchange in the lungs and tissues

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: C08.01a State the type of material moving in each of the membrane transport process -- simple diffusion, facilitated diffusion, osmosis, active transport, exocytosis, endocytosis, phagocytosis, pinocytosis, and filtration.; K14.07a Explain the role of diffusion in capillary exchange of gases, nutrients and wastes.

24) Hydrophobic molecules usually enter a cell via _____.

- A) osmosis
- B) active transport
- C) diffusion
- D) protein channels

Answer: C

Section: 06.02

Topic: Mechanisms for movement across cell membranes

Bloom's: 1. Remember; 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: C08.01a State the type of material moving in each of the membrane transport process -- simple diffusion, facilitated diffusion, osmosis, active transport, exocytosis, endocytosis, phagocytosis, pinocytosis, and filtration.

25) Individuals suffering from cystic fibrosis have defective _____ ion channels.

- A) sodium
- B) potassium
- C) calcium
- D) chloride

Answer: D

Section: 06.02

Topic: Clinical applications of homeostatic mechanisms of the cell; Mechanisms for movement across cell membranes

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: C15.02 Predict the types of problems that would occur if the cells could not maintain homeostasis due to abnormalities in organelle function, transport processes, protein synthesis, or the cell cycle.

26) Channels present in the membranes of some cells that allow rapid movement of water are called _____.

- A) water tubes
- B) aqueducts
- C) aquaporins
- D) streams

Answer: C

Section: 06.02

Topic: Mechanisms for movement across cell membranes; Membrane structure and function

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: C08.01b Describe the mechanism by which movement of material occurs in each membrane transport process -- simple diffusion, facilitated diffusion, osmosis, active transport, exocytosis, endocytosis, phagocytosis, pinocytosis, and filtration.

27) Which of the following is able to passively penetrate the plasma membrane (without a transport protein)?

- A) O₂
- B) Small charged particles
- C) Large polar molecules
- D) All of the choices are correct.

Answer: A

Section: 06.02

Topic: Mechanisms for movement across cell membranes

Bloom's: 1. Remember; 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: C08.01a State the type of material moving in each of the membrane transport process -- simple diffusion, facilitated diffusion, osmosis, active transport, exocytosis, endocytosis, phagocytosis, pinocytosis, and filtration.

28) Ion channels that can be opened by physiological stimuli are said to be _____.

- A) polar
- B) aquaporins
- C) hypertonic
- D) gated

Answer: D

Section: 06.02

Topic: Mechanisms for movement across cell membranes; Membrane structure and function

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: C08.01b Describe the mechanism by which movement of material occurs in each membrane transport process -- simple diffusion, facilitated diffusion, osmosis, active transport, exocytosis, endocytosis, phagocytosis, pinocytosis, and filtration.

29) How do small molecules like Na⁺ or K⁺ pass through the plasma membrane?

- A) Gated channels
- B) Ion channels
- C) Carrier proteins
- D) Simple diffusion

Answer: B

Section: 06.02

Topic: Mechanisms for movement across cell membranes

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: C08.01a State the type of material moving in each of the membrane transport process -- simple diffusion, facilitated diffusion, osmosis, active transport, exocytosis, endocytosis, phagocytosis, pinocytosis, and filtration.

30) The rate of diffusion increases as the concentration gradient increases.

Answer: TRUE

Section: 06.02

Topic: Mechanisms for movement across cell membranes

Bloom's: 1. Remember; 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: C08.01b Describe the mechanism by which movement of material occurs in each membrane transport process -- simple diffusion, facilitated diffusion, osmosis, active transport, exocytosis, endocytosis, phagocytosis, pinocytosis, and filtration.

31) Diffusion is more rapid in cells with microvilli compared to cells lacking microvilli.

Answer: TRUE

Section: 06.02

Topic: Mechanisms for movement across cell membranes; Membrane structure and function

Bloom's: 1. Remember; 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: C08.01b Describe the mechanism by which movement of material occurs in each membrane transport process -- simple diffusion, facilitated diffusion, osmosis, active transport, exocytosis, endocytosis, phagocytosis, pinocytosis, and filtration.

32) The rate of diffusion is influenced by _____.

A) the concentration gradient

B) membrane permeability

C) membrane surface area

D) All of the choices are correct.

Answer: D

Section: 06.02

Topic: Mechanisms for movement across cell membranes

Bloom's: 1. Remember; 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: C08.01b Describe the mechanism by which movement of material occurs in each membrane transport process -- simple diffusion, facilitated diffusion, osmosis, active transport, exocytosis, endocytosis, phagocytosis, pinocytosis, and filtration.

33) Solutes that cannot freely pass through a membrane are said to be _____.

- A) hypertonic
- B) osmotically inactive
- C) osmotically active
- D) selectively permeable

Answer: C

Section: 06.02

Topic: Mechanisms for movement across cell membranes

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: C08.01b Describe the mechanism by which movement of material occurs in each membrane transport process -- simple diffusion, facilitated diffusion, osmosis, active transport, exocytosis, endocytosis, phagocytosis, pinocytosis, and filtration.

34) Which of the following cells do NOT normally have many aquaporins in their plasma membranes?

- A) Kidneys
- B) Lungs
- C) Salivary glands
- D) Skin

Answer: D

Section: 06.02

Topic: Membrane structure and function; Microscopic anatomy of the skin

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: C08.01b Describe the mechanism by which movement of material occurs in each membrane transport process -- simple diffusion, facilitated diffusion, osmosis, active transport, exocytosis, endocytosis, phagocytosis, pinocytosis, and filtration.

35) Because the kidneys are so important for water balance, the plasma membranes of kidney cells have many permanent aquaporins.

Answer: FALSE

Section: 06.02

Topic: Mechanisms for movement across cell membranes; Membrane structure and function

Bloom's: 1. Remember; 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: C07.03 Describe how proteins are distributed in a cell membrane, and explain their functions.; C08.01b Describe the mechanism by which movement of material occurs in each membrane transport process -- simple diffusion, facilitated diffusion, osmosis, active transport, exocytosis, endocytosis, phagocytosis, pinocytosis, and filtration.

36) The osmotic pressure exerted by a cell would decrease if the cell synthesized more proteins.

Answer: FALSE

Section: 06.02

Topic: Mechanisms for movement across cell membranes

Bloom's: 1. Remember; 3. Apply

Accessibility: Keyboard Navigation

HAPS Outcome: C08.01b Describe the mechanism by which movement of material occurs in each membrane transport process -- simple diffusion, facilitated diffusion, osmosis, active transport, exocytosis, endocytosis, phagocytosis, pinocytosis, and filtration.

37) Edema will result if a person has an abnormally low concentration of plasma proteins.

Answer: TRUE

Section: 06.02

Topic: Clinical applications of homeostatic mechanisms of the cell; Mechanisms for movement across cell membranes; Composition of blood plasma

Bloom's: 1. Remember; 3. Apply

Accessibility: Keyboard Navigation

HAPS Outcome: Q04.01 Explain the role of electrolytes and non-electrolytes in the determination of osmotic pressure.

38) The osmotic pressure of a solution is directly related to its _____ concentration.

A) water

B) solute

C) solvent

D) matrix

Answer: B

Section: 06.02

Topic: Mechanisms for movement across cell membranes

Bloom's: 1. Remember; 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: Q04.01 Explain the role of electrolytes and non-electrolytes in the determination of osmotic pressure.

39) Osmotic pressure is a measure of the force needed to _____.

- A) open aquaporins
- B) cause osmosis
- C) stop osmosis
- D) stop edema

Answer: C

Section: 06.02

Topic: Mechanisms for movement across cell membranes

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: Q04.01 Explain the role of electrolytes and non-electrolytes in the determination of osmotic pressure.

40) A one molar solution would contain 6.02×10^{23} molecules of solute.

Answer: TRUE

Section: 06.02

Topic: Inorganic compounds and solutions; Mechanisms for movement across cell membranes

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: Q04.01 Explain the role of electrolytes and non-electrolytes in the determination of osmotic pressure.

41) A 0.5M glucose (molecular weight = 180 g) contains _____ grams of glucose per liter.

- A) 90
- B) 180
- C) 6.02×10^{23}
- D) 360

Answer: A

Section: 06.02

Topic: Inorganic compounds and solutions; Mechanisms for movement across cell membranes; Organic compounds

Bloom's: 1. Remember; 3. Apply

Accessibility: Keyboard Navigation

HAPS Outcome: Q04.01 Explain the role of electrolytes and non-electrolytes in the determination of osmotic pressure.

42) A six molar sucrose (molecular weight = 342 g) solution would contain _____.

- A) 57 g sucrose per liter
- B) 342 g sucrose per liter
- C) 1026 g sucrose per liter
- D) 2052 g sucrose per liter

Answer: D

Section: 06.02

Topic: Inorganic compounds and solutions; Mechanisms for movement across cell membranes

Bloom's: 1. Remember; 3. Apply

Accessibility: Keyboard Navigation

HAPS Outcome: Q04.01 Explain the role of electrolytes and non-electrolytes in the determination of osmotic pressure.

43) How many grams of sucrose (molecular weight = 342 g) would need to be added to 1 L of water to produce a 2.5 Osm solution?

- A) 342
- B) 500
- C) 855
- D) 2.5

Answer: C

Section: 06.02

Topic: Inorganic compounds and solutions; Mechanisms for movement across cell membranes

Bloom's: 1. Remember; 3. Apply

Accessibility: Keyboard Navigation

HAPS Outcome: Q04.01 Explain the role of electrolytes and non-electrolytes in the determination of osmotic pressure.

44) One mole of solute per liter depresses the freezing point of water by -1.86°C .

Answer: TRUE

Section: 06.02

Topic: Inorganic compounds and solutions; Mechanisms for movement across cell membranes

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: Q04.01 Explain the role of electrolytes and non-electrolytes in the determination of osmotic pressure.

45) Plasma freezes at _____.

- A) -1.86°C
- B) -1.00°C
- C) -0.56°C
- D) 0.00°C

Answer: C

Section: 06.02

Topic: Inorganic compounds and solutions; Composition of blood plasma

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: Q04.01 Explain the role of electrolytes and non-electrolytes in the determination of osmotic pressure.

46) Freezing-point depression is a measure of osmolality.

Answer: TRUE

Section: 06.02

Topic: Inorganic compounds and solutions

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: Q04.01 Explain the role of electrolytes and non-electrolytes in the determination of osmotic pressure.

47) A solution with an osmolality four times greater than plasma would freeze at _____.

- A) -0.56°C
- B) -1.12°C
- C) -1.68°C
- D) -2.24°C

Answer: D

Section: 06.02

Topic: Inorganic compounds and solutions

Bloom's: 1. Remember; 3. Apply

Accessibility: Keyboard Navigation

HAPS Outcome: Q04.01 Explain the role of electrolytes and non-electrolytes in the determination of osmotic pressure.

48) A 10% dextrose solution is isotonic to plasma.

Answer: FALSE

Section: 06.02

Topic: Inorganic compounds and solutions; Composition of blood plasma

Bloom's: 1. Remember; 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: C08.02 Describe the effects of hypertonic, isotonic, and hypotonic conditions on cells.

49) A cell placed in a 9% saline solution (molecular weight = 58.5 g) would _____.

A) lyse

B) crenate

C) not change

D) swell

Answer: B

Section: 06.02

Topic: Inorganic compounds and solutions; Mechanisms for movement across cell membranes

Bloom's: 1. Remember; 3. Apply

Accessibility: Keyboard Navigation

HAPS Outcome: C08.02 Describe the effects of hypertonic, isotonic, and hypotonic conditions on cells.

50) The amount of water in a cell placed in a 0.8 Osm solution would _____.

A) decrease

B) increase

C) remain constant

Answer: A

Section: 06.02

Topic: Inorganic compounds and solutions; Mechanisms for movement across cell membranes

Bloom's: 1. Remember; 3. Apply

Accessibility: Keyboard Navigation

HAPS Outcome: C08.02 Describe the effects of hypertonic, isotonic, and hypotonic conditions on cells.

51) Cells placed in hypotonic solutions will _____.

- A) decrease in volume
- B) increase intracellular solute concentration
- C) increase in volume
- D) lose water to the solution

Answer: C

Section: 06.02

Topic: Mechanisms for movement across cell membranes

Bloom's: 1. Remember; 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: C08.02 Describe the effects of hypertonic, isotonic, and hypotonic conditions on cells.

52) What type of intravenous fluid would be given to reduce edema?

- A) Hypertonic
- B) Isotonic
- C) Hypotonic

Answer: A

Section: 06.02

Topic: Clinical applications of homeostatic mechanisms of the cell; Mechanisms for movement across cell membranes

Bloom's: 1. Remember; 3. Apply

Accessibility: Keyboard Navigation

HAPS Outcome: C08.02 Describe the effects of hypertonic, isotonic, and hypotonic conditions on cells.

53) Cerebral edema would be treated with a(n) _____ intravenous solution of mannitol.

- A) hypertonic
- B) hypotonic
- C) isotonic

Answer: A

Section: 06.02

Topic: Clinical applications of homeostatic mechanisms of the cell; Mechanisms for movement across cell membranes

Bloom's: 1. Remember; 3. Apply

Accessibility: Keyboard Navigation

HAPS Outcome: C08.02 Describe the effects of hypertonic, isotonic, and hypotonic conditions on cells.

54) A solution freezing at -1.98°C is _____.

- A) hypotonic to plasma
- B) isotonic to plasma
- C) hypertonic to plasma
- D) not related to plasma

Answer: C

Section: 06.02

Topic: Inorganic compounds and solutions; Mechanisms for movement across cell membranes

Bloom's: 1. Remember; 3. Apply

Accessibility: Keyboard Navigation

HAPS Outcome: C08.02 Describe the effects of hypertonic, isotonic, and hypotonic conditions on cells.

55) Osmoreceptors are involved in the regulation of blood volume.

Answer: TRUE

Section: 06.02

Topic: Regulation of water balance

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: Q07.01 Provide specific examples to demonstrate how the cardiovascular, endocrine, and urinary systems respond to maintain homeostasis of fluid volume in the body.

56) Antidiuretic hormone is released by the posterior pituitary in response to increased plasma osmolality.

Answer: TRUE

Section: 06.02

Topic: Regulation of water balance; Examples of homeostatic mechanisms; Hormonal regulation

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: Q07.01 Provide specific examples to demonstrate how the cardiovascular, endocrine, and urinary systems respond to maintain homeostasis of fluid volume in the body.

57) A 0.1 Osm plasma sample would _____.

- A) stimulate the action of osmoreceptors
- B) be hypertonic to the cells
- C) stimulate an increase in blood volume
- D) inhibit the release of antidiuretic hormone

Answer: D

Section: 06.02

Topic: Regulation of water balance; Examples of homeostatic mechanisms; Hormonal regulation

Bloom's: 1. Remember; 3. Apply

Accessibility: Keyboard Navigation

HAPS Outcome: Q07.01 Provide specific examples to demonstrate how the cardiovascular, endocrine, and urinary systems respond to maintain homeostasis of fluid volume in the body.

58) Which of the following is NOT true of a person who is dehydrated?

- A) Plasma osmolality increases.
- B) Hypothalamus stimulates release of ADH.
- C) ADH causes the kidneys to excrete water.
- D) Increased osmolality causes thirst.

Answer: C

Section: 06.02

Topic: Regulation of water balance; Hormonal regulation

Bloom's: 1. Remember; 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: Q07.01 Provide specific examples to demonstrate how the cardiovascular, endocrine, and urinary systems respond to maintain homeostasis of fluid volume in the body.

59) Glycosuria would occur if the _____ of the renal glucose transport protein is exceeded.

- A) transport minimum
- B) transport maximum
- C) saturation level
- D) transport maximum or saturation level

Answer: D

Section: 06.03

Topic: Clinical applications of homeostatic mechanisms of the cell; Mechanisms for movement across cell membranes; Regulation of urine volume and composition

Bloom's: 1. Remember; 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: Q07.01 Provide specific examples to demonstrate how the cardiovascular, endocrine, and urinary systems respond to maintain homeostasis of fluid volume in the body.

60) Protein carrier-mediated transport of molecules display _____.

- A) specificity
- B) competition
- C) saturation
- D) All of the choices are correct.

Answer: D

Section: 06.03

Topic: Mechanisms for movement across cell membranes

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: C07.03 Describe how proteins are distributed in a cell membrane, and explain their functions.

61) The transport maximum is related to the property known as _____.

- A) competition
- B) saturation
- C) specificity
- D) inhibition

Answer: B

Section: 06.03

Topic: Mechanisms for movement across cell membranes

Bloom's: 1. Remember; 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: C08.01b Describe the mechanism by which movement of material occurs in each membrane transport process -- simple diffusion, facilitated diffusion, osmosis, active transport, exocytosis, endocytosis, phagocytosis, pinocytosis, and filtration.

62) Glucose enters the cell by the process of facilitated diffusion.

Answer: TRUE

Section: 06.03

Topic: Mechanisms for movement across cell membranes

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: C08.01a State the type of material moving in each of the membrane transport process -- simple diffusion, facilitated diffusion, osmosis, active transport, exocytosis, endocytosis, phagocytosis, pinocytosis, and filtration.

63) Facilitated diffusion is unable to transport molecules against a concentration gradient.

Answer: TRUE

Section: 06.03

Topic: Mechanisms for movement across cell membranes

Bloom's: 1. Remember; 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: C08.01b Describe the mechanism by which movement of material occurs in each membrane transport process -- simple diffusion, facilitated diffusion, osmosis, active transport, exocytosis, endocytosis, phagocytosis, pinocytosis, and filtration.

64) The glucose carrier of skeletal muscle is designated as _____.

A) GLUT2

B) GLUT3

C) GLUT4

D) GLUT5

Answer: C

Section: 06.03

Topic: Mechanisms for movement across cell membranes; Microscopic anatomy of skeletal muscle

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: C08.01a State the type of material moving in each of the membrane transport process -- simple diffusion, facilitated diffusion, osmosis, active transport, exocytosis, endocytosis, phagocytosis, pinocytosis, and filtration.

65) Facilitated diffusion of a molecule into a cell would be more rapid if the _____.

A) concentration of the molecule in the cell increased

B) concentration of water in the cell decreased

C) concentration of the molecule outside the cell increased

D) cell was isotonic

Answer: C

Section: 06.03

Topic: Mechanisms for movement across cell membranes

Bloom's: 1. Remember; 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: C08.01b Describe the mechanism by which movement of material occurs in each membrane transport process -- simple diffusion, facilitated diffusion, osmosis, active transport, exocytosis, endocytosis, phagocytosis, pinocytosis, and filtration.

66) Glucose transported via the GLUT carrier is characterized as _____.

- A) active transport
- B) passive transport
- C) co-transport
- D) receptor-mediated endocytosis

Answer: B

Section: 06.03

Topic: Mechanisms for movement across cell membranes

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: C08.01c Discuss the energy requirements and, if applicable, the sources of energy for each process -- simple diffusion, facilitated diffusion, osmosis, active transport, exocytosis, endocytosis, phagocytosis, pinocytosis, and filtration.

67) Where are GLUT carriers located in an unstimulated muscle fiber?

- A) In the plasma membrane facing the external environment
- B) In the plasma membrane facing the internal environment
- C) Within cytoplasmic vesicles
- D) There are no GLUT carriers present.

Answer: C

Section: 06.03

Topic: Mechanisms for movement across cell membranes; Skeletal muscle metabolism

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: C08.01b Describe the mechanism by which movement of material occurs in each membrane transport process -- simple diffusion, facilitated diffusion, osmosis, active transport, exocytosis, endocytosis, phagocytosis, pinocytosis, and filtration.

68) Active transport proteins are often regulated by the availability of ATP.

Answer: TRUE

Section: 06.03

Topic: Cellular respiration; Mechanisms for movement across cell membranes

Bloom's: 1. Remember; 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: C08.01c Discuss the energy requirements and, if applicable, the sources of energy for each process -- simple diffusion, facilitated diffusion, osmosis, active transport, exocytosis, endocytosis, phagocytosis, pinocytosis, and filtration.

69) Which of the following is NOT a primary active transport pump?

- A) GLUT4
- B) Calcium pump
- C) Sodium/potassium pump
- D) Proton pump

Answer: A

Section: 06.03

Topic: Mechanisms for movement across cell membranes

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: C08.01b Describe the mechanism by which movement of material occurs in each membrane transport process -- simple diffusion, facilitated diffusion, osmosis, active transport, exocytosis, endocytosis, phagocytosis, pinocytosis, and filtration.

70) Active transport carriers are also called _____.

- A) vesicles
- B) channels
- C) pumps
- D) receptors

Answer: C

Section: 06.03

Topic: Mechanisms for movement across cell membranes

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: C08.01b Describe the mechanism by which movement of material occurs in each membrane transport process -- simple diffusion, facilitated diffusion, osmosis, active transport, exocytosis, endocytosis, phagocytosis, pinocytosis, and filtration.

71) Since the calcium pump is also an ATPase enzyme, it must utilize ATP to move calcium into the cell.

Answer: TRUE

Section: 06.03

Topic: Mechanisms for movement across cell membranes

Bloom's: 1. Remember; 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: H04.06a Differentiate between passive and active ion channels.

- 72) The ATPase enzyme _____.
- A) adds a P_i to ADP
 - B) powers endocytosis
 - C) couples Na^+ to glucose
 - D) hydrolyzes ATP into ADP and P_i

Answer: D

Section: 06.03

Topic: Energy transfer using ATP; Mechanisms for movement across cell membranes

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: C05.01 Describe the generalized reversible reaction for release of energy from ATP and explain the role of ATP in the cell.; C08.01c Discuss the energy requirements and, if applicable, the sources of energy for each process -- simple diffusion, facilitated diffusion, osmosis, active transport, exocytosis, endocytosis, phagocytosis, pinocytosis, and filtration.

- 73) The Na^+/K^+ pump transports _____ into the cell and _____ out of the cell per cycle.
- A) $3Na^+$; $2K^+$
 - B) $2Na^+$; $3K^+$
 - C) $3K^+$; $2Na^+$
 - D) $2K^+$; $3Na^+$

Answer: D

Section: 06.03

Topic: Mechanisms for movement across cell membranes

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H04.08 Describe the role of the sodium-potassium exchange pump in maintaining the resting membrane potential and making continued action potentials possible.

- 74) Choose the correct description of the Na^+/K^+ pump.
- A) It is an example of primary active transport.
 - B) It generates a positive membrane potential.
 - C) It actively transports 2 potassium ions out of the cell.
 - D) It actively transports 3 sodium ions into the cell.

Answer: A

Section: 06.03

Topic: Mechanisms for movement across cell membranes

Bloom's: 1. Remember; 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: H04.08 Describe the role of the sodium-potassium exchange pump in maintaining the resting membrane potential and making continued action potentials possible.

75) Which of the following is a function of the steep Na^+/K^+ gradient across the cell membrane?

- A) Provides energy for coupled transport
- B) Creates electrochemical gradient
- C) Maintains osmotic pressure
- D) All of the choices are correct.

Answer: D

Section: 06.03

Topic: Mechanisms for movement across cell membranes

Bloom's: 1. Remember; 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: H04.08 Describe the role of the sodium-potassium exchange pump in maintaining the resting membrane potential and making continued action potentials possible.; H04.05 Define electrochemical gradient.

76) In secondary active transport, if the other substance is moved in the same direction as Na^+ , it is called _____.

- A) cotransport
- B) symport
- C) antiport
- D) Cotransport and symport are both correct.

Answer: D

Section: 06.03

Topic: Mechanisms for movement across cell membranes

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: C08.01b Describe the mechanism by which movement of material occurs in each membrane transport process -- simple diffusion, facilitated diffusion, osmosis, active transport, exocytosis, endocytosis, phagocytosis, pinocytosis, and filtration.

77) Poisoning that disables the Na^+/K^+ pump would cause the volume of the cell to _____.

- A) increase
- B) decrease
- C) remain the same

Answer: A

Section: 06.03

Topic: Clinical applications of homeostatic mechanisms of the cell; Mechanisms for movement across cell membranes

Bloom's: 1. Remember; 3. Apply

Accessibility: Keyboard Navigation

HAPS Outcome: H04.08 Describe the role of the sodium-potassium exchange pump in maintaining the resting membrane potential and making continued action potentials possible.; H16.01 Predict factors or situations affecting the nervous system that could disrupt homeostasis.

78) In the Na^+/K^+ pump, three sodium ions from inside the cell must enter the carrier first.

Answer: TRUE

Section: 06.03

Topic: Mechanisms for movement across cell membranes

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H04.08 Describe the role of the sodium-potassium exchange pump in maintaining the resting membrane potential and making continued action potentials possible.

79) The transport of molecules out of the urinary filtrate and into the blood is called _____.

- A) absorption
- B) reabsorption
- C) countertransport
- D) symport

Answer: B

Section: 06.03

Topic: Mechanisms for movement across cell membranes; Regulation of urine volume and composition

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: C08.01d Give examples of each membrane transport process in the human body -- simple diffusion, facilitated diffusion, osmosis, active transport, exocytosis, endocytosis, phagocytosis, pinocytosis, and filtration.

80) The transport of amino acids across epithelial membranes requires the _____.

- A) Na^+/K^+ pump
- B) Ca^{2+} pump
- C) Na^+/H^+ pump
- D) facilitated diffusion

Answer: C

Section: 06.03

Topic: Mechanisms for movement across cell membranes

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: C08.01a State the type of material moving in each of the membrane transport process -- simple diffusion, facilitated diffusion, osmosis, active transport, exocytosis, endocytosis, phagocytosis, pinocytosis, and filtration.

81) Secondary active transport _____.

- A) utilizes energy directly
- B) often utilizes symport proteins
- C) always uses the influx of sodium ions
- D) is only important in the kidney

Answer: B

Section: 06.03

Topic: Mechanisms for movement across cell membranes

Bloom's: 1. Remember; 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: C08.01b Describe the mechanism by which movement of material occurs in each membrane transport process -- simple diffusion, facilitated diffusion, osmosis, active transport, exocytosis, endocytosis, phagocytosis, pinocytosis, and filtration.

82) Poisoning that disables the Na^+/K^+ pump would _____.

- A) generate a more negative membrane potential
- B) increase cellular permeability to Na^+
- C) inhibit secondary active transport
- D) increase cellular permeability to K^+

Answer: C

Section: 06.03

Topic: Clinical applications of homeostatic mechanisms of the cell; Mechanisms for movement across cell membranes

Bloom's: 1. Remember; 3. Apply

Accessibility: Keyboard Navigation

HAPS Outcome: H16.01 Predict factors or situations affecting the nervous system that could disrupt homeostasis.

83) What type of junctional complex will prohibit paracellular transport?

- A) Tight junctions
- B) Adherens junctions
- C) Desmosomes
- D) Gap junctions

Answer: A

Section: 06.03

Topic: Mechanisms for movement across cell membranes; Membrane structure and function

Bloom's: 1. Remember; 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: C07.03 Describe how proteins are distributed in a cell membrane, and explain their functions.

84) Transport of materials through an epithelial cell is called _____.

- A) paracellular transport
- B) transcellular transport
- C) bulk transport
- D) exocytosis

Answer: B

Section: 06.03

Topic: Mechanisms for movement across cell membranes

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: C08.01b Describe the mechanism by which movement of material occurs in each membrane transport process -- simple diffusion, facilitated diffusion, osmosis, active transport, exocytosis, endocytosis, phagocytosis, pinocytosis, and filtration.

85) Which of the following is true of oral rehydration therapy?

- A) It is used to treat severe diarrhea.
- B) The presence of glucose aids the intestinal absorption of Na^+ and water.
- C) It saves more than a million small children per year.
- D) All of the choices are correct.

Answer: D

Section: 06.03

Topic: Clinical applications of homeostatic mechanisms of the cell; Mechanisms for movement across cell membranes

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: Q04.05 Explain how dehydration and overhydration develop and how fluids shift between the three major body compartments during each.

86) Inhibition of receptor-mediated endocytosis could _____.

- A) induce hypercholesterolemia
- B) induce diabetes mellitus
- C) prevent diabetes mellitus
- D) prevent hypercholesterolemia

Answer: A

Section: 06.03

Topic: Clinical applications of homeostatic mechanisms of the cell; Mechanisms for movement across cell membranes

Bloom's: 1. Remember; 3. Apply

Accessibility: Keyboard Navigation

HAPS Outcome: C08.01d Give examples of each membrane transport process in the human body -- simple diffusion, facilitated diffusion, osmosis, active transport, exocytosis, endocytosis, phagocytosis, pinocytosis, and filtration.; C15.02 Predict the types of problems that would occur if the cells could not maintain homeostasis due to abnormalities in organelle function, transport processes, protein synthesis, or the cell cycle.

87) Movement of large molecules into a cell is called _____.

- A) endocytosis
- B) exocytosis
- C) bulk transport
- D) Both endocytosis and bulk transport are correct.

Answer: D

Section: 06.03

Topic: Mechanisms for movement across cell membranes

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: C08.01a State the type of material moving in each of the membrane transport process -- simple diffusion, facilitated diffusion, osmosis, active transport, exocytosis, endocytosis, phagocytosis, pinocytosis, and filtration.

88) If the Na^+/K^+ pump did not function, the _____ of the cell would become more _____.

- A) interior; negative
- B) interior; positive
- C) exterior; positive
- D) None the choices are correct.

Answer: B

Section: 06.04

Topic: Mechanisms for movement across cell membranes

Bloom's: 1. Remember; 4. Analyze

Accessibility: Keyboard Navigation

HAPS Outcome: H04.08 Describe the role of the sodium-potassium exchange pump in maintaining the resting membrane potential and making continued action potentials possible.

89) The primary intracellular cation is _____.

- A) Ca^{2+}
- B) K^+
- C) Mg^{2+}
- D) Na^+

Answer: B

Section: 06.04

Topic: Intracellular organization; Mechanisms for movement across cell membranes

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H04.03 Contrast the relative concentrations of sodium, potassium and chloride ions inside and outside of a cell.; Q03.02 Compare and contrast the relative concentrations of major electrolytes in intracellular and extracellular fluids.

90) The sodium equilibrium potential using an extracellular Na^+ concentration of 145 mEq/L and an intracellular concentration of 14 mEq/L would be approximately _____.

- A) -90 mV
- B) $+62$ mV
- C) -62 mV
- D) $+90$ mV

Answer: B

Section: 06.04

Topic: Mechanisms for movement across cell membranes

Bloom's: 1. Remember; 3. Apply

Accessibility: Keyboard Navigation

HAPS Outcome: H04.03 Contrast the relative concentrations of sodium, potassium and chloride ions inside and outside of a cell.

91) The resting membrane potential is closest to the equilibrium potential for _____.

- A) sodium ions
- B) chloride ions
- C) calcium ions
- D) potassium ions

Answer: D

Section: 06.04

Topic: Mechanisms for movement across cell membranes

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H04.03 Contrast the relative concentrations of sodium, potassium and chloride ions inside and outside of a cell.; H04.06b Explain how passive ion channels cause development of the resting membrane potential in neurons.

92) If the intracellular concentration of Ca^{2+} was 10 mEq/L and the extracellular concentration was 150 mEq/L, the Ca^{2+} equilibrium potential would be _____.

- A) -35.9 mV
- B) -71.8 mV
- C) +35.9 mV
- D) +71.8 mV

Answer: C

Section: 06.04

Topic: Intracellular organization; Mechanisms for movement across cell membranes

Bloom's: 1. Remember; 3. Apply

Accessibility: Keyboard Navigation

HAPS Outcome: H04.03 Contrast the relative concentrations of sodium, potassium and chloride ions inside and outside of a cell.

93) Hyperkalemia would _____ the resting membrane potential of the cell.

- A) increase
- B) decrease
- C) have no effect on
- D) reverse

Answer: B

Section: 06.04

Topic: Clinical applications of homeostatic mechanisms of the cell; Mechanisms for movement across cell membranes

Bloom's: 1. Remember; 3. Apply

Accessibility: Keyboard Navigation

HAPS Outcome: H04.03 Contrast the relative concentrations of sodium, potassium and chloride ions inside and outside of a cell.

94) Most cells have a resting membrane potential between _____.

- A) +60 mV and -90 mV
- B) -60 mV and -90 mV
- C) -65 mV and -85 mV
- D) +65 mV and +90 mV

Answer: C

Section: 06.04

Topic: Mechanisms for movement across cell membranes; Membrane structure and function

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H04.06b Explain how passive ion channels cause development of the resting membrane potential in neurons.

95) The Na⁺/K⁺ pump _____.

- A) establishes equal concentrations of sodium and potassium ions across the membrane
- B) contributes to the negative intracellular charge
- C) is an example of secondary active transport
- D) exchanges three potassium for every 2 sodium molecules. As it stands, that answer is also correct.

Answer: B

Section: 06.04

Topic: Intracellular organization; Mechanisms for movement across cell membranes

Bloom's: 1. Remember; 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: H04.08 Describe the role of the sodium-potassium exchange pump in maintaining the resting membrane potential and making continued action potentials possible.

96) Which of the following is NOT a general category of cell signaling molecules?

- A) Endocrine signaling
- B) Enzymatic signaling
- C) Paracrine signaling
- D) Synaptic signaling

Answer: B

Section: 06.05

Topic: Types of homeostatic mechanisms

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: C14.01 Provide specific examples to demonstrate how individual cells respond to their environment (e.g., in terms of organelle function, transport processes, protein synthesis, or regulation of cell cycle) in order to maintain homeostasis in the body.; J01.02 Compare and contrast how the nervous and endocrine systems control body function, with emphasis on the mechanisms by which the controlling signals are transferred through the body and the time course of the response(s) and action(s).

97) Regardless of solubility, a cell signaling molecule could not affect a target cell without _____.

- A) being attached to another cell
- B) a second messenger in the plasma membrane
- C) specific receptor proteins within the cell or in the plasma membrane
- D) All of the choices are correct.

Answer: C

Section: 06.05

Topic: Types of homeostatic mechanisms

Bloom's: 1. Remember; 4. Analyze

Accessibility: Keyboard Navigation

HAPS Outcome: C14.01 Provide specific examples to demonstrate how individual cells respond to their environment (e.g., in terms of organelle function, transport processes, protein synthesis, or regulation of cell cycle) in order to maintain homeostasis in the body.

98) What structures are used for direct cell to cell signaling?

- A) Desmosomes
- B) Tight junctions
- C) Exocytosis vesicles
- D) Gap junctions

Answer: D

Section: 06.05

Topic: Membrane structure and function; Types of homeostatic mechanisms

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: C14.01 Provide specific examples to demonstrate how individual cells respond to their environment (e.g., in terms of organelle function, transport processes, protein synthesis, or regulation of cell cycle) in order to maintain homeostasis in the body.

99) To exert effects on its target cell, _____ would require a second messenger.

- A) epinephrine
- B) acetylcholine
- C) nitric oxide
- D) epinephrine and acetylcholine

Answer: D

Section: 06.05

Topic: Types of homeostatic mechanisms

Bloom's: 1. Remember; 3. Apply

Accessibility: Keyboard Navigation

HAPS Outcome: C14.01 Provide specific examples to demonstrate how individual cells respond to their environment (e.g., in terms of organelle function, transport processes, protein synthesis, or regulation of cell cycle) in order to maintain homeostasis in the body.; J01.02 Compare and contrast how the nervous and endocrine systems control body function, with emphasis on the mechanisms by which the controlling signals are transferred through the body and the time course of the response(s) and action(s).

100) What determines how a regulatory molecule influences its target cell?

- A) Polarity and solubility
- B) Solubility and size
- C) Size and polarity
- D) Polarity, solubility, and size

Answer: A

Section: 06.05

Topic: Types of homeostatic mechanisms

Bloom's: 1. Remember; 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: C14.01 Provide specific examples to demonstrate how individual cells respond to their environment (e.g., in terms of organelle function, transport processes, protein synthesis, or regulation of cell cycle) in order to maintain homeostasis in the body.; J01.02 Compare and contrast how the nervous and endocrine systems control body function, with emphasis on the mechanisms by which the controlling signals are transferred through the body and the time course of the response(s) and action(s).

- 101) Which of the following is NOT true of cyclic AMP?
- A) It is found on the outside of a plasma membrane.
 - B) It is a second messenger for polar regulatory molecules.
 - C) It is made from ATP.
 - D) It activates enzymes inside a cell to produce the desired effect.

Answer: A

Section: 06.05

Topic: Types of homeostatic mechanisms

Bloom's: 1. Remember; 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: C14.01 Provide specific examples to demonstrate how individual cells respond to their environment (e.g., in terms of organelle function, transport processes, protein synthesis, or regulation of cell cycle) in order to maintain homeostasis in the body.; J01.02 Compare and contrast how the nervous and endocrine systems control body function, with emphasis on the mechanisms by which the controlling signals are transferred through the body and the time course of the response(s) and action(s).

- 102) What molecules pass information from the polar regulatory molecule receptor to activate the enzymes that produce cAMP?
- A) Paracrines
 - B) G-proteins
 - C) GTP
 - D) None of the choices are correct.

Answer: B

Section: 06.05

Topic: Types of homeostatic mechanisms

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: C14.01 Provide specific examples to demonstrate how individual cells respond to their environment (e.g., in terms of organelle function, transport processes, protein synthesis, or regulation of cell cycle) in order to maintain homeostasis in the body.

103) Which of the following is NOT a G-protein?

- A) Alpha
- B) Beta
- C) Delta
- D) Gamma

Answer: C

Section: 06.05

Topic: Intracellular organization; Types of homeostatic mechanisms

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: C14.01 Provide specific examples to demonstrate how individual cells respond to their environment (e.g., in terms of organelle function, transport processes, protein synthesis, or regulation of cell cycle) in order to maintain homeostasis in the body.

104) Where is the G-protein complex when a regulatory molecule is not bound to its receptor?

- A) The alpha subunit is attached to the inner surface of the receptor.
- B) The three subunits are together but not attached to the inner surface of the receptor.
- C) The three subunits are together AND attached to the inner surface of the receptor.
- D) The beta and gamma subunits are attached to the inner surface of the receptor.

Answer: C

Section: 06.05

Topic: Intracellular organization; Types of homeostatic mechanisms

Bloom's: 1. Remember; 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: C14.01 Provide specific examples to demonstrate how individual cells respond to their environment (e.g., in terms of organelle function, transport processes, protein synthesis, or regulation of cell cycle) in order to maintain homeostasis in the body.

105) Where is the receptor for a nonpolar, lipid-soluble regulatory molecule?

- A) Embedded in the outer surface of the plasma membrane
- B) Embedded in the inner surface of the plasma membrane
- C) In the cytoplasm or nucleus of the cell
- D) All of the choices are correct.

Answer: C

Section: 06.05

Topic: Membrane structure and function; Types of homeostatic mechanisms

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: C14.01 Provide specific examples to demonstrate how individual cells respond to their environment (e.g., in terms of organelle function, transport processes, protein synthesis, or regulation of cell cycle) in order to maintain homeostasis in the body.

106) Ions like Ca^{2+} can be second messengers for cell signaling.

Answer: TRUE

Section: 06.05

Topic: Intracellular organization; Types of homeostatic mechanisms

Bloom's: 1. Remember; 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: C14.01 Provide specific examples to demonstrate how individual cells respond to their environment (e.g., in terms of organelle function, transport processes, protein synthesis, or regulation of cell cycle) in order to maintain homeostasis in the body.

107) What type of cell signaling occurs through the extracellular matrix to nearby target cells?

- A) Endocrine signaling
- B) Synaptic signaling
- C) Gap junctions
- D) Paracrine signaling

Answer: D

Section: 06.05

Topic: Types of homeostatic mechanisms

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: C14.01 Provide specific examples to demonstrate how individual cells respond to their environment (e.g., in terms of organelle function, transport processes, protein synthesis, or regulation of cell cycle) in order to maintain homeostasis in the body.; J01.02 Compare and contrast how the nervous and endocrine systems control body function, with emphasis on the mechanisms by which the controlling signals are transferred through the body and the time course of the response(s) and action(s).

108) What type of cell signaling uses neurotransmitters to innervate its target organ?

- A) Synaptic signaling
- B) Paracrine signaling
- C) Endocrine signaling
- D) Gap junctions

Answer: A

Section: 06.05

Topic: Mechanisms for movement across cell membranes; Types of homeostatic mechanisms

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: C14.01 Provide specific examples to demonstrate how individual cells respond to their environment (e.g., in terms of organelle function, transport processes, protein synthesis, or regulation of cell cycle) in order to maintain homeostasis in the body.; J01.02 Compare and contrast how the nervous and endocrine systems control body function, with emphasis on the mechanisms by which the controlling signals are transferred through the body and the time course of the response(s) and action(s).; H05.05 Discuss the relationship between a neurotransmitter and its receptor.

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1) Both neurons and neuroglia will easily divide by mitosis.

Answer: FALSE

Section: 07.01

Topic: Development of the nervous system

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H03.01 List the parts of the nervous system that constitute the central nervous system (CNS) and those that constitute the peripheral nervous system (PNS).

2) Most brain tumors in adults are found within neurons.

Answer: FALSE

Section: 07.01

Topic: Clinical applications of the nervous system

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: H03.01 List the parts of the nervous system that constitute the central nervous system (CNS) and those that constitute the peripheral nervous system (PNS).

3) Ganglia are clusters of nerve cell bodies located in the peripheral nervous system.

Answer: TRUE

Section: 07.01

Topic: Anatomical and functional organization of the nervous system

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H03.01 List the parts of the nervous system that constitute the central nervous system (CNS) and those that constitute the peripheral nervous system (PNS).

4) Axonal transport _____.

A) uses molecular motors

B) can only transport signals in a retrograde direction

C) has two fast and one slow components

D) is a passive process

Answer: A

Section: 07.01

Topic: Physiology of nerve impulse transmission

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: H03.01 List the parts of the nervous system that constitute the central nervous system (CNS) and those that constitute the peripheral nervous system (PNS).

- 5) Retrograde transport _____.
- A) moves toward the cell body
 - B) moves membranes, vesicles, and viruses
 - C) uses molecular motor proteins of dynein
 - D) All of the choices are correct.

Answer: D

Section: 07.01

Topic: Physiology of nerve impulse transmission

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H03.01 List the parts of the nervous system that constitute the central nervous system (CNS) and those that constitute the peripheral nervous system (PNS).; H03.02f Describe how the anatomy of each type of neuron supports its function.

- 6) Choose the statement that correctly describes the structure or function of dendrites.
- A) Transmit action potentials away from the cell body
 - B) Are thin extensions of the axon
 - C) Transmit graded electrochemical impulses toward the cell body
 - D) Release neurotransmitters to initiate graded potentials in adjacent cells

Answer: C

Section: 07.01

Topic: Microscopic anatomy of neurons; Physiology of nerve impulse transmission

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: H03.01 List the parts of the nervous system that constitute the central nervous system (CNS) and those that constitute the peripheral nervous system (PNS).; H03.02f Describe how the anatomy of each type of neuron supports its function.

- 7) Retrograde axonal transport may be responsible for movement of herpes virus, rabies virus, and tetanus toxin from nerve terminals to the cell body.

Answer: TRUE

Section: 07.01

Topic: Clinical applications of the nervous system; Physiology of nerve impulse transmission

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: H03.01 List the parts of the nervous system that constitute the central nervous system (CNS) and those that constitute the peripheral nervous system (PNS).

- 8) Sensory neurons _____.
- A) are multipolar, and carry impulses toward the CNS
 - B) are pseudounipolar, and carry impulses toward the CNS
 - C) are bipolar, and carry impulses away from the CNS
 - D) are multipolar, and carry impulses away from the CNS

Answer: B

Section: 07.01

Topic: Anatomical and functional organization of the nervous system; Microscopic anatomy of neurons

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H03.01 List the parts of the nervous system that constitute the central nervous system (CNS) and those that constitute the peripheral nervous system (PNS).; H03.02f Describe how the anatomy of each type of neuron supports its function.

- 9) Structural classifications of neurons do NOT include _____.
- A) motor neurons
 - B) bipolar neurons
 - C) multipolar neurons
 - D) pseudounipolar neurons

Answer: A

Section: 07.01

Topic: Anatomical and functional organization of the nervous system

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H03.01 List the parts of the nervous system that constitute the central nervous system (CNS) and those that constitute the peripheral nervous system (PNS).

- 10) Somatic motor neurons innervate involuntary effectors.

Answer: FALSE

Section: 07.01

Topic: Anatomical and functional organization of the nervous system; Comparisons of somatic and autonomic nervous systems

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: H03.01 List the parts of the nervous system that constitute the central nervous system (CNS) and those that constitute the peripheral nervous system (PNS).

11) Which division of the nervous system innervates involuntary effectors?

- A) Central nervous system
- B) Somatic nervous system
- C) Autonomic nervous system
- D) Associative nervous system

Answer: C

Section: 07.01

Topic: Anatomical and functional organization of the nervous system; Comparisons of somatic and autonomic nervous systems

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H03.01 List the parts of the nervous system that constitute the central nervous system (CNS) and those that constitute the peripheral nervous system (PNS).

12) What type of neuron is found entirely in the CNS?

- A) Sensory neuron
- B) Interneuron
- C) Association neuron
- D) Both interneuron and association neuron are correct.

Answer: D

Section: 07.01

Topic: Anatomical and functional organization of the nervous system

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H03.01 List the parts of the nervous system that constitute the central nervous system (CNS) and those that constitute the peripheral nervous system (PNS).

13) A bundle of axons in the CNS is called a _____.

- A) nerve
- B) bundle
- C) tract
- D) neuron

Answer: C

Section: 07.01

Topic: Anatomy of the spinal cord and spinal nerves; Microscopic anatomy of neurons

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H03.01 List the parts of the nervous system that constitute the central nervous system (CNS) and those that constitute the peripheral nervous system (PNS).; H03.02b Identify soma (cell body), axon, and dendrites.; H03.06 Differentiate between a nerve and a CNS tract.

14) Which type of cell of the CNS is phagocytic?

- A) Microglia
- B) Satellite cells
- C) Ependymal cells
- D) Oligodendrocytes

Answer: A

Section: 07.01

Topic: Microscopic anatomy of neuroglia

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H03.01 List the parts of the nervous system that constitute the central nervous system (CNS) and those that constitute the peripheral nervous system (PNS).; H03.03a List four types of CNS glial cells.; H03.03b Describe functions for each of those cells.

15) The myelin sheaths of CNS neurons are produced by _____.

- A) Schwann cells
- B) oligodendrocytes
- C) ependymal cells
- D) leukocytes

Answer: B

Section: 07.01

Topic: Microscopic anatomy of neuroglia

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H03.01 List the parts of the nervous system that constitute the central nervous system (CNS) and those that constitute the peripheral nervous system (PNS).; H03.03a List four types of CNS glial cells.; H03.03b Describe functions for each of those cells.

16) Which type of cell lines the ventricles of the brain and help produce cerebrospinal fluid?

- A) Microglia
- B) Satellite cells
- C) Ependymal cells
- D) Oligodendrocytes

Answer: C

Section: 07.01

Topic: Microscopic anatomy of neuroglia

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H03.01 List the parts of the nervous system that constitute the central nervous system (CNS) and those that constitute the peripheral nervous system (PNS).; H03.03a List four types of CNS glial cells.; H03.03b Describe functions for each of those cells.

17) The myelin sheaths of PNS neurons are produced by _____.

- A) Schwann cells
- B) oligodendrocytes
- C) ependymal cells
- D) leukocytes

Answer: A

Section: 07.01

Topic: Microscopic anatomy of neuroglia

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H03.01 List the parts of the nervous system that constitute the central nervous system (CNS) and those that constitute the peripheral nervous system (PNS).; H03.04a List two types of PNS glial cells; H03.04b Describe functions for each of those cells.

18) Cells supporting neuron cell bodies in ganglia are termed _____.

- A) astrocytes
- B) ependymal cells
- C) satellite cells
- D) Schwann cells

Answer: C

Section: 07.01

Topic: Microscopic anatomy of neuroglia

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H03.01 List the parts of the nervous system that constitute the central nervous system (CNS) and those that constitute the peripheral nervous system (PNS).; H03.04a List two types of PNS glial cells; H03.04b Describe functions for each of those cells.

19) What structure, found surrounding PNS axons, is NOT found surrounding CNS axons?

- A) Nodes of Ranvier
- B) Myelin sheath
- C) Neurilemma
- D) Plasma membrane

Answer: C

Section: 07.01

Topic: Anatomical and functional organization of the nervous system; Microscopic anatomy of neurons

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: H04.13b Explain how axon diameter and myelination affect conduction velocity.

20) All axons in the PNS have a myelin sheath.

Answer: FALSE

Section: 07.01

Topic: Anatomy of the spinal cord and spinal nerves

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: H04.13b Explain how axon diameter and myelination affect conduction velocity.

21) Destruction of astrocytes would decrease the rate at which action potentials are transmitted.

Answer: FALSE

Section: 07.01

Topic: Physiology of nerve impulse transmission

Bloom's: 3. Apply

Accessibility: Keyboard Navigation

HAPS Outcome: H03.03b Describe functions for each of those cells.; H04.13b Explain how axon diameter and myelination affect conduction velocity.

22) Action potential transmission in the PNS is decreased if which cells are damaged?

A) Astrocytes

B) Microglia

C) Oligodendrocytes

D) Schwann cells

Answer: D

Section: 07.01

Topic: Clinical applications of the nervous system; Physiology of nerve impulse transmission

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: H03.04b Describe functions for each of those cells.; H04.13b Explain how axon diameter and myelination affect conduction velocity.

23) The gap of exposed axon in the myelin sheath is the _____.

- A) neurilemma
- B) node of Ranvier
- C) sheath of Schwann
- D) white matter

Answer: B

Section: 07.01

Topic: Microscopic anatomy of neurons; Physiology of nerve impulse transmission

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H03.04b Describe functions for each of those cells.; H04.13b Explain how axon diameter and myelination affect conduction velocity.

24) The term "white matter" refers to _____.

- A) myelinated axons in the CNS
- B) myelinated axons in the PNS
- C) nonmyelinated cell bodies and dendrites in the CNS
- D) nonmyelinated axons in the CNS

Answer: A

Section: 07.01

Topic: Anatomical and functional organization of the nervous system

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H04.13b Explain how axon diameter and myelination affect conduction velocity.

25) Axonal regeneration is inhibited by _____.

- A) brain-derived neurotrophic factor
- B) nerve growth factor
- C) neurotrophin-3
- D) myelin-associated inhibitory protein

Answer: D

Section: 07.01

Topic: Microscopic anatomy of neurons; Physiology of nerve impulse transmission

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H04.13b Explain how axon diameter and myelination affect conduction velocity.

26) Degeneration of spinal motor neurons in adults may be due to a lack of _____ factor.

- A) brain-derived neurotrophic (BDNF)
- B) neurotrophin-3
- C) nerve growth (NGF)
- D) glial-derived neurotrophic (GDNF)

Answer: D

Section: 07.01

Topic: Clinical applications of the nervous system; Physiology of nerve impulse transmission

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: H03.03c Explain how the anatomy of each CNS glial cell supports its function.; H16.02 Predict the types of problems that would occur in the body if the nervous system could not maintain homeostasis

27) Neurotrophins are NOT responsible for _____.

- A) maintaining sympathetic ganglion
- B) sustaining neurons that use the NT dopamine
- C) embryonic development of neurons
- D) regeneration of injured motor neurons

Answer: D

Section: 07.01

Topic: Clinical applications of the nervous system; Microscopic anatomy of neurons

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H16.01 Predict factors or situations affecting the nervous system that could disrupt homeostasis.

28) The most numerous of all cells of CNS nervous tissue are the _____.

- A) astrocytes
- B) neurons
- C) Schwann cells
- D) microglia

Answer: A

Section: 07.01

Topic: Microscopic anatomy of neuroglia

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H03.03a List four types of CNS glial cells.; H08.04 Describe the structural basis for, and the importance of the blood brain barrier.

- 29) Astrocytes are NOT involved in _____.
- A) uptake of NT from a synapse
 - B) stimulation or inhibition neurons
 - C) formation of synapses in the CNS
 - D) breakdown and engulfment of foreign material in the CNS
 - E) formation the blood-brain barrier

Answer: D

Section: 07.01

Topic: Microscopic anatomy of neuroglia

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: H03.03b Describe functions for each of those cells.; H08.04 Describe the structural basis for, and the importance of the blood brain barrier.

- 30) The blood-brain barrier prevents hydrophobic molecules from diffusing into the brain.

Answer: FALSE

Section: 07.01

Topic: Microscopic anatomy of neuroglia

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: H03.03c Explain how the anatomy of each CNS glial cell supports its function.; H08.04 Describe the structural basis for, and the importance of the blood brain barrier.

- 31) The blood-brain barrier results mostly from the action of _____, a type of neuroglia.

- A) ependymal cells
- B) microglia
- C) astrocytes
- D) oligodendrocytes

Answer: C

Section: 07.01

Topic: Microscopic anatomy of neuroglia

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H03.03c Explain how the anatomy of each CNS glial cell supports its function.; H08.04 Describe the structural basis for, and the importance of the blood brain barrier.

- 32) If a cell's membrane is not excitable, this means that _____.
- A) the cell is a neuron
 - B) the cell cannot be depolarized under any conditions
 - C) the cell cannot vary the permeability of the membrane to specific ions
 - D) the cell does not have a measurable voltage

Answer: C

Section: 07.02

Topic: Physiology of nerve impulse transmission

Bloom's: 4. Analyze

Accessibility: Keyboard Navigation

HAPS Outcome: H04.07 Discuss the sequence of events that must occur for an action potential to be generated.

- 33) The membrane of resting nerve cells is more permeable to _____ ions than _____ ions.
- A) sodium, potassium
 - B) calcium, potassium
 - C) potassium, sodium
 - D) chloride, potassium

Answer: C

Section: 07.02

Topic: Physiology of nerve impulse transmission

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H04.02 Explain how ion channels affect neuron selective permeability.;
H04.03 Contrast the relative concentrations of sodium, potassium and chloride ions inside and outside of a cell.

- 34) The average resting membrane potential of an axon is _____.
- A) -70 mV
 - B) -85 mV
 - C) 0 mV
 - D) +30 mV

Answer: A

Section: 07.02

Topic: Physiology of nerve impulse transmission

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H04.07 Discuss the sequence of events that must occur for an action potential to be generated.

35) Ion channels that open in response to depolarization are called _____.

- A) ion-gated channels
- B) voltage-gated channels
- C) stimulation-gated channels
- D) potential-gated channels

Answer: B

Section: 07.02

Topic: Physiology of nerve impulse transmission

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H04.06d Describe the voltage-gated ion channels that are essential for development of the action potential.; H04.07 Discuss the sequence of events that must occur for an action potential to be generated.

36) A drug that blocked _____ channels would prevent neuron _____.

- A) K^+ ; depolarization
- B) Na^+ ; hyperpolarization
- C) Na^+ ; depolarization
- D) Ca^{2+} ; repolarization

Answer: C

Section: 07.02

Topic: Physiology of nerve impulse transmission

Bloom's: 4. Analyze

Accessibility: Keyboard Navigation

HAPS Outcome: H04.06b Explain how passive ion channels cause development of the resting membrane potential in neurons.; H04.07 Discuss the sequence of events that must occur for an action potential to be generated.

37) During an action potential _____.

- A) Na^+ efflux causes depolarization
- B) K^+ influx causes repolarization
- C) Na^+ influx causes depolarization
- D) K^+ influx causes after-hyperpolarization

Answer: C

Section: 07.02

Topic: Physiology of nerve impulse transmission

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H04.06d Describe the voltage-gated ion channels that are essential for development of the action potential.; H04.07 Discuss the sequence of events that must occur for an action potential to be generated.

38) In order to prevent a patient from experiencing pain, local anesthetics must _____ in sensory neurons, which would prevent an action potential.

- A) inhibit the release of acetylcholine
- B) bind to potassium channels
- C) bind to sodium channels
- D) bind to calcium channels

Answer: C

Section: 07.02

Topic: Clinical applications of the nervous system; Physiology of nerve impulse transmission

Bloom's: 3. Apply

Accessibility: Keyboard Navigation

HAPS Outcome: H04.06b Explain how passive ion channels cause development of the resting membrane potential in neurons.; H04.06d Describe the voltage-gated ion channels that are essential for development of the action potential.; H04.07 Discuss the sequence of events that must occur for an action potential to be generated.

39) Depolarization of an axon is a positive feedback mechanism because _____.

- A) as more sodium channels open, the membrane potential decreases
- B) as more potassium channels open, the membrane potential decreases
- C) as more sodium diffuses into the axon, the more voltage-gated potassium channels open
- D) as more sodium diffuses into the axon, the more voltage-gated sodium channels open

Answer: C

Section: 07.02

Topic: Physiology of nerve impulse transmission; Types of homeostatic mechanisms

Bloom's: 4. Analyze

Accessibility: Keyboard Navigation

HAPS Outcome: H04.07 Discuss the sequence of events that must occur for an action potential to be generated.; H04.10 Discuss the role of positive feedback in generation of the action potential.

40) An axon will depolarize only if the membrane potential reaches between -70mV and -55mV . This follows the _____.

- A) all-or-none law
- B) recruitment law
- C) graduated law
- D) threshold law

Answer: A

Section: 07.02

Topic: Physiology of nerve impulse transmission

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: H04.07 Discuss the sequence of events that must occur for an action potential to be generated.; H04.09 Define threshold.

41) The minimum depolarization needed to open Na^+ gates is called the _____.

- A) repolarization
- B) threshold
- C) refractory period
- D) all-or-none law

Answer: B

Section: 07.02

Topic: Physiology of nerve impulse transmission

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H04.07 Discuss the sequence of events that must occur for an action potential to be generated.; H04.09 Define threshold.

42) During the absolute refractory period, a supramaximal stimulus can bring the cell to threshold.

Answer: FALSE

Section: 07.02

Topic: Physiology of nerve impulse transmission

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: H04.12c Discuss the consequence of a neuron having an absolute refractory period.

43) The period of time when Na^+ channels are recovering from their inactive state and K^+ channels are still open is the _____.

- A) repolarization
- B) absolute refractory period
- C) relative refractory period
- D) Both repolarization and relative refractory period are correct.

Answer: D

Section: 07.02

Topic: Physiology of nerve impulse transmission

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: H04.12b Explain the physiological basis of the absolute and relative refractory periods.

44) Which ion's movement is responsible for repolarization?

- A) Influx of K⁺
- B) Influx of Na⁺
- C) Outward diffusion of K⁺
- D) Outward diffusion of Na⁺

Answer: C

Section: 07.02

Topic: Physiology of nerve impulse transmission

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H04.03 Contrast the relative concentrations of sodium, potassium and chloride ions inside and outside of a cell.; H04.08 Describe the role of the sodium-potassium exchange pump in maintaining the resting membrane potential and making continued action potentials possible.

45) What is needed to return a membrane to its resting membrane potential, with all ions in the correct locations?

- A) Influx of negatively charged ions into the cell
- B) Outflow of Na⁺ ions via passive ion channels
- C) Na⁺/K⁺ pump action
- D) Outflow of K⁺ ions via passive ion channels

Answer: C

Section: 07.02

Topic: Physiology of nerve impulse transmission

Bloom's: 4. Analyze

Accessibility: Keyboard Navigation

HAPS Outcome: H04.08 Describe the role of the sodium-potassium exchange pump in maintaining the resting membrane potential and making continued action potentials possible.

46) How do neurons code for a greater response?

- A) Greater amplitude of stimuli
- B) Greater Na⁺ concentration gradient
- C) Increased frequency of stimuli
- D) More active Na⁺/K⁺ pump

Answer: C

Section: 07.02

Topic: Physiology of nerve impulse transmission

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: H04.07 Discuss the sequence of events that must occur for an action potential to be generated.

47) As the intensity of a stimulus increases, more axons will become activated. This process is called _____.

- A) threshold
- B) refraction
- C) recruitment
- D) None of the choices are correct.

Answer: C

Section: 07.02

Topic: Physiology of nerve impulse transmission

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H04.07 Discuss the sequence of events that must occur for an action potential to be generated.

48) An inactivated ion channel will respond to a stronger than normal threshold stimulus.

Answer: FALSE

Section: 07.02

Topic: Physiology of nerve impulse transmission

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: H04.02 Explain how ion channels affect neuron selective permeability.; H04.12c Discuss the consequence of a neuron having an absolute refractory period.

49) Both depolarization and repolarization are produced by the diffusion of ions down their concentration gradient.

Answer: TRUE

Section: 07.02

Topic: Physiology of nerve impulse transmission

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H04.03 Contrast the relative concentrations of sodium, potassium and chloride ions inside and outside of a cell.; H05.10 Explain how movement of sodium ions alone, or movement of both sodium and potassium ions, across the postsynaptic cell membrane can excite a neuron.

50) Since diffusion of ions down their concentration gradients is a passive process, ATP does not influence the ability of a cell to be depolarized and repolarized.

Answer: FALSE

Section: 07.02

Topic: Physiology of nerve impulse transmission

Bloom's: 4. Analyze

Accessibility: Keyboard Navigation

HAPS Outcome: H04.07 Discuss the sequence of events that must occur for an action potential to be generated.

51) What is NOT true of the relative refractory period?

A) Na⁺ channels are inactivated.

B) Many Na⁺ channels are returning to a closed state.

C) K⁺ is moving out of the axon through its open channels.

D) A strong stimulus could cause a depolarization.

Answer: A

Section: 07.02

Topic: Physiology of nerve impulse transmission

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: H04.12b Explain the physiological basis of the absolute and relative refractory periods.

52) Conduction without decrement means that action potentials transmitted down an axon will not decrease in amplitude.

Answer: TRUE

Section: 07.02

Topic: Physiology of nerve impulse transmission

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H04.13b Explain how axon diameter and myelination affect conduction velocity.

53) Action potentials would be conducted most rapidly by _____.

- A) a 10 mm diameter myelinated axon
- B) a 10 mm diameter unmyelinated axon
- C) a 40 mm diameter myelinated axon
- D) a 40 mm diameter unmyelinated axon

Answer: C

Section: 07.02

Topic: Physiology of nerve impulse transmission

Bloom's: 3. Apply

Accessibility: Keyboard Navigation

HAPS Outcome: H04.13b Explain how axon diameter and myelination affect conduction velocity.

54) Since sensory neurons for muscle position are the fastest conducting neurons, they would have a larger diameter than sensory neurons for touch, pain or pressure.

Answer: TRUE

Section: 07.02

Topic: Physiology of nerve impulse transmission

Bloom's: 3. Apply

Accessibility: Keyboard Navigation

HAPS Outcome: H04.13b Explain how axon diameter and myelination affect conduction velocity.

55) Conduction of an action potential in a myelinated axon is called _____.

- A) point to point conduction
- B) saltatory conduction
- C) refractory conduction
- D) cable conduction

Answer: B

Section: 07.02

Topic: Physiology of nerve impulse transmission

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H04.13b Explain how axon diameter and myelination affect conduction velocity.; H04.13c Describe saltatory conduction.

56) The greater the number of depolarization regions on an axon, the faster the action potential will be conducted.

Answer: FALSE

Section: 07.02

Topic: Physiology of nerve impulse transmission

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: H04.13a Describe how local circuit currents cause impulse conduction in an unmyelinated axon.; H04.13b Explain how axon diameter and myelination affect conduction velocity.

57) Since the action potential "leaps" from node to node in a myelinated axon, _____.

A) myelinated axons need far less Na⁺ channels than unmyelinated axons

B) action potentials move faster if the nodes are farther apart

C) Na⁺ movement within the myelin sheath is possible

D) Na⁺ channels are not present between the nodes

Answer: D

Section: 07.02

Topic: Physiology of nerve impulse transmission

Bloom's: 3. Apply

Accessibility: Keyboard Navigation

HAPS Outcome: H04.13b Explain how axon diameter and myelination affect conduction velocity.

58) The synapses which occur between axons of presynaptic cells and dendrites of postsynaptic cells are called _____.

A) axodendritic

B) axosomatic

C) myoneural

D) axoaxonic

Answer: A

Section: 07.03

Topic: Neurotransmitters and their roles in synaptic transmission

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H05.02 List the structures that comprise a chemical synapse.

59) Chemicals that stimulate action potentials in postsynaptic cells are called _____.

- A) hormones
- B) enzymes
- C) neurotransmitters
- D) neurotrophins

Answer: C

Section: 07.03

Topic: Neurotransmitters and their roles in synaptic transmission; Physiology of nerve impulse transmission

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H05.05 Discuss the relationship between a neurotransmitter and its receptor.; H05.18 Compare and contrast chemical and electrical synapses.

60) Chemical synapses _____.

- A) have a delayed impulse transmission
- B) utilize gap junctions
- C) occur when two nerve cells are in direct contact with each other
- D) do not require the release of neurotransmitters

Answer: A

Section: 07.03

Topic: Neurotransmitters and their roles in synaptic transmission; Physiology of nerve impulse transmission

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: H05.18 Compare and contrast chemical and electrical synapses.

61) Unlike chemical synapses, electrical synapses _____.

- A) are the method of connection between adjacent neurons
- B) allow communication between cells with larger distances between the membranes
- C) provide adjacent cells with the ability to act in a coordinated fashion
- D) are not dependent on the movement of ions across a plasma membrane

Answer: C

Section: 07.03

Topic: Neurotransmitters and their roles in synaptic transmission; Physiology of nerve impulse transmission

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: H05.18 Compare and contrast chemical and electrical synapses.

62) What type of proteins are present in gap junctions that form water-filled channels between neurons?

- A) Connexins
- B) Myelin
- C) Terminal boutons
- D) Cell adhesion molecules (CAMs)

Answer: D

Section: 07.03

Topic: Neurotransmitters and their roles in synaptic transmission

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H05.18 Compare and contrast chemical and electrical synapses.

63) What type of proteins are present at chemical synapses to ensure the close proximity of the presynaptic and postsynaptic membranes?

- A) Connexins
- B) Myelin
- C) Terminal boutons
- D) Cell adhesion molecules (CAMs)

Answer: D

Section: 07.03

Topic: Neurotransmitters and their roles in synaptic transmission

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H05.02 List the structures that comprise a chemical synapse.; H05.18 Compare and contrast chemical and electrical synapses.

64) Synaptic vesicles are docked to the plasma membrane of the axon terminal by a protein complex called _____.

- A) boutons
- B) connexins
- C) synaptotagmins
- D) SNARE

Answer: D

Section: 07.03

Topic: Neurotransmitters and their roles in synaptic transmission; Physiology of nerve impulse transmission

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H05.02 List the structures that comprise a chemical synapse.; H05.18 Compare and contrast chemical and electrical synapses.

65) Botulism toxin prevents release of ACh, causing _____.

- A) flaccid paralysis
- B) hemiplegia
- C) spastic paralysis
- D) None of the choices are correct.

Answer: A

Section: 07.03

Topic: Clinical applications of the nervous system; Neurotransmitters and their roles in synaptic transmission

Bloom's: 3. Apply

Accessibility: Keyboard Navigation

HAPS Outcome: H05.18 Compare and contrast chemical and electrical synapses.; H16.02 Predict the types of problems that would occur in the body if the nervous system could not maintain homeostasis

66) A lack of extracellular Ca^{2+} would cause increased release of neurotransmitters.

Answer: FALSE

Section: 07.03

Topic: Neurotransmitters and their roles in synaptic transmission

Bloom's: 3. Apply

Accessibility: Keyboard Navigation

HAPS Outcome: H05.18 Compare and contrast chemical and electrical synapses.; H16.01 Predict factors or situations affecting the nervous system that could disrupt homeostasis.

67) Neurotransmitter release would be inhibited by _____.

- A) stimulating repolarization of the axon terminal
- B) blocking Ca^{2+} influx in the axon terminal
- C) blocking repolarization of the axon terminal
- D) stimulating protein kinase activity

Answer: B

Section: 07.03

Topic: Neurotransmitters and their roles in synaptic transmission; Physiology of nerve impulse transmission

Bloom's: 3. Apply

Accessibility: Keyboard Navigation

HAPS Outcome: H05.18 Compare and contrast chemical and electrical synapses.; H16.01 Predict factors or situations affecting the nervous system that could disrupt homeostasis.

- 68) Neurotransmitter action could be prevented, or disrupted, if a drug or other agent _____.
- A) increased the expression of CAMs in the postsynaptic membrane
 - B) decreased the distance between the pre- and postsynaptic membranes
 - C) decreased the concentration of SNARE complexes in the postsynaptic cell
 - D) blocked voltage-gated Ca^{2+} channels in the presynaptic membrane

Answer: D

Section: 07.03

Topic: Neurotransmitters and their roles in synaptic transmission; Physiology of nerve impulse transmission

Bloom's: 3. Apply

Accessibility: Keyboard Navigation

HAPS Outcome: H05.18 Compare and contrast chemical and electrical synapses.; H16.01 Predict factors or situations affecting the nervous system that could disrupt homeostasis.

- 69) Hyperpolarization in the postsynaptic cell is caused by _____.
- A) excitatory postsynaptic potentials
 - B) inhibitory postsynaptic potentials
 - C) movement of K^+ out of the cell
 - D) Both inhibitory postsynaptic potentials and movement of K^+ out of the cell are correct.

Answer: D

Section: 07.03

Topic: Neurotransmitters and their roles in synaptic transmission; Physiology of nerve impulse transmission

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: H05.08 Define excitatory postsynaptic potential (EPSP) and inhibitory postsynaptic potential (IPSP) and interpret graphs showing the voltage vs. time relationship of an EPSP and an IPSP.

- 70) Neurotransmitters _____.
- A) are released by endocytosis
 - B) bind to voltage-gated channels
 - C) bind to chemically regulated channels
 - D) are actively transported across the synaptic cleft

Answer: C

Section: 07.03

Topic: Neurotransmitters and their roles in synaptic transmission

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: H05.18 Compare and contrast chemical and electrical synapses.

71) Synaptic transmission using acetylcholine would be disrupted by _____.

- A) curare
- B) botulinum toxin
- C) strychnine
- D) Both curare and botulinum toxin are correct.

Answer: D

Section: 07.03

Topic: Clinical applications of the nervous system; Neurotransmitters and their roles in synaptic transmission

Bloom's: 3. Apply

Accessibility: Keyboard Navigation

HAPS Outcome: H05.18 Compare and contrast chemical and electrical synapses.

72) Choose the incorrect statement regarding EPSPs.

- A) They are graded responses.
- B) They are capable of summation.
- C) They have a refractory period.
- D) They are initiated by neurotransmitters.

Answer: C

Section: 07.03

Topic: Neurotransmitters and their roles in synaptic transmission; Physiology of nerve impulse transmission

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: H05.08 Define excitatory postsynaptic potential (EPSP) and inhibitory postsynaptic potential (IPSP) and interpret graphs showing the voltage vs. time relationship of an EPSP and an IPSP.

73) What action would produce an IPSP on the postsynaptic membrane?

- A) Influx of Na⁺ ions
- B) Opening of Ca²⁺ channels into the neuron
- C) Outflow of K⁺ ions
- D) Opening of Cl⁻ channels into the neuron

Answer: D

Section: 07.03

Topic: Neurotransmitters and their roles in synaptic transmission; Physiology of nerve impulse transmission

Bloom's: 3. Apply

Accessibility: Keyboard Navigation

HAPS Outcome: H05.08 Define excitatory postsynaptic potential (EPSP) and inhibitory postsynaptic potential (IPSP) and interpret graphs showing the voltage vs. time relationship of an EPSP and an IPSP.; H05.11 Explain how movement of potassium or chloride ions across the postsynaptic cell membrane can inhibit a neuron.

74) An EPSP is conducted in a decremental fashion to the axon hillock, where voltage-gated Na⁺ and K⁺ channels are opened. This creates an action potential in the first segment of the axon.

Answer: TRUE

Section: 07.03

Topic: Neurotransmitters and their roles in synaptic transmission

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: H05.07 Describe the events of synaptic transmission in proper chronological order.; H05.08 Define excitatory postsynaptic potential (EPSP) and inhibitory postsynaptic potential (IPSP) and interpret graphs showing the voltage vs. time relationship of an EPSP and an IPSP.

75) The nicotinic ACh receptor is a ligand-gated channel.

Answer: TRUE

Section: 07.04

Topic: Neurotransmitters and their roles in synaptic transmission

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H04.06c Differentiate between voltage-gated and chemically-gated ion channels.

76) An inhibitory postsynaptic potential could be produced by a neurotransmitter that opens Cl⁻ channels.

Answer: TRUE

Section: 07.04

Topic: Neurotransmitters and their roles in synaptic transmission

Bloom's: 3. Apply

Accessibility: Keyboard Navigation

HAPS Outcome: H05.08 Define excitatory postsynaptic potential (EPSP) and inhibitory postsynaptic potential (IPSP) and interpret graphs showing the voltage vs. time relationship of an EPSP and an IPSP.; H05.11 Explain how movement of potassium or chloride ions across the postsynaptic cell membrane can inhibit a neuron.

77) Acetylcholine _____.

- A) is always an excitatory neurotransmitter
- B) can bind to adrenergic receptors
- C) is an inhibitory neurotransmitter released by motor neurons
- D) can bind to nicotinic receptors

Answer: D

Section: 07.04

Topic: Neurotransmitters and their roles in synaptic transmission

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: H05.05 Discuss the relationship between a neurotransmitter and its receptor.; H05.13 Explain how a single neurotransmitter may be excitatory at one synapse and inhibitory at another.

78) Muscarinic ACh receptors are found in all of the following locations EXCEPT _____.

- A) skeletal muscle
- B) smooth muscle
- C) cardiac muscle
- D) glands

Answer: A

Section: 07.04

Topic: Neurotransmitters and their roles in synaptic transmission

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H05.05 Discuss the relationship between a neurotransmitter and its receptor.; H05.14 Describe the mechanism by which neurotransmitters may have indirect (metabotropic) effects on postsynaptic cells.

79) What do muscarine and nicotine have in common?

- A) They are both antagonists for their respective receptors.
- B) They are both agonists for their respective receptors.
- C) They both activate-protein coupled channels.
- D) They are both always excitatory.

Answer: B

Section: 07.04

Topic: Neurotransmitters and their roles in synaptic transmission

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: H05.14 Describe the mechanism by which neurotransmitters may have indirect (metabotropic) effects on postsynaptic cells.

80) Atropine is an agonist to nicotine.

Answer: TRUE

Section: 07.04

Topic: Clinical applications of the nervous system; Neurotransmitters and their roles in synaptic transmission

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H05.14 Describe the mechanism by which neurotransmitters may have indirect (metabotropic) effects on postsynaptic cells.

81) Nicotinic receptors utilize G-proteins to regulate the opening of ion channels.

Answer: FALSE

Section: 07.04

Topic: Neurotransmitters and their roles in synaptic transmission

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H04.06c Differentiate between voltage-gated and chemically-gated ion channels.

82) What is the predominant effect of stimulation of nicotinic-gated channels?

- A) Stimulation due to outflow of K^+ ions
- B) Inhibition due to outflow of K^+ ions
- C) Stimulation due to influx of Na^+ ions
- D) Inhibition due to influx of Cl^- ions

Answer: C

Section: 07.04

Topic: Neurotransmitters and their roles in synaptic transmission

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: H05.10 Explain how movement of sodium ions alone, or movement of both sodium and potassium ions, across the postsynaptic cell membrane can excite a neuron.

83) Muscarinic ACh receptors act through _____ activation of K⁺ channels.

- A) cGMP
- B) G-protein
- C) M-protein
- D) ATP

Answer: B

Section: 07.04

Topic: Neurotransmitters and their roles in synaptic transmission

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H05.14 Describe the mechanism by which neurotransmitters may have indirect (metabotropic) effects on postsynaptic cells.

84) Acetylcholine usually induces an excitatory postsynaptic potential when binding to _____ receptors and an inhibitory postsynaptic potential when binding to some _____ receptors.

- A) NMDA; nicotinic
- B) nicotinic; muscarinic
- C) muscarinic; NMDA
- D) muscarinic; nicotinic

Answer: B

Section: 07.04

Topic: Neurotransmitters and their roles in synaptic transmission

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: H05.13 Explain how a single neurotransmitter may be excitatory at one synapse and inhibitory at another.; H05.14 Describe the mechanism by which neurotransmitters may have indirect (metabotropic) effects on postsynaptic cells.

85) Acetylcholine can induce hyperpolarization by _____.

- A) binding to nicotinic receptors
- B) binding to muscarinic receptors
- C) binding to α -adrenergic receptors
- D) binding to β -adrenergic receptors

Answer: B

Section: 07.04

Topic: Neurotransmitters and their roles in synaptic transmission

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: H05.13 Explain how a single neurotransmitter may be excitatory at one synapse and inhibitory at another.; H05.14 Describe the mechanism by which neurotransmitters may have indirect (metabotropic) effects on postsynaptic cells.

86) If the binding of muscarine to its receptor in the heart causes the beta-gamma complex of the G-protein to bind to a K⁺ channel, _____.

- A) the K⁺ channel will close, leading to depolarization
- B) the K⁺ channel will open, leading to depolarization
- C) the K⁺ channel will close, leading to hyperpolarization and inhibition
- D) the K⁺ channel will open, leading to hyperpolarization and inhibition

Answer: D

Section: 07.04

Topic: Neurotransmitters and their roles in synaptic transmission

Bloom's: 3. Apply

Accessibility: Keyboard Navigation

HAPS Outcome: H05.05 Discuss the relationship between a neurotransmitter and its receptor.; H05.14 Describe the mechanism by which neurotransmitters may have indirect (metabotropic) effects on postsynaptic cells.

87) What is the action of the binding of muscarine to its receptors in the digestive system?

- A) Alpha subunits bind to K⁺ channels, close them, leading to depolarization.
- B) Alpha subunits bind to K⁺ channels, open them, leading to hyperpolarization.
- C) Beta-gamma subunits bind to K⁺ channels, close them, leading to depolarization.
- D) Beta-gamma subunits bind to K⁺ channels, open them, leading to hyperpolarization.

Answer: A

Section: 07.04

Topic: Neurotransmitters and their roles in synaptic transmission; Hormonal and neural regulation of digestive processes

Bloom's: 3. Apply

Accessibility: Keyboard Navigation

HAPS Outcome: H05.05 Discuss the relationship between a neurotransmitter and its receptor.; H05.14 Describe the mechanism by which neurotransmitters may have indirect (metabotropic) effects on postsynaptic cells.

88) Neostigmine, used to treat myasthenia gravis, blocks the enzyme that degrades _____. This helps treat the disease because _____.

- A) acetylcholine; it destroys the antibodies that block nicotinic ACh receptors on the motor end plate
- B) norepinephrine; it increases the amount of acetylcholine available to bind to receptors on the motor end plate
- C) acetylcholine; it increases the amount of acetylcholine available to bind to receptors on the motor end plate
- D) nicotine; it destroys the antibodies that block nicotinic ACh receptors on the motor end plate

Answer: C

Section: 07.04

Topic: Clinical applications of the nervous system; Neurotransmitters and their roles in synaptic transmission

Bloom's: 4. Analyze

Accessibility: Keyboard Navigation

HAPS Outcome: H05.07 Describe the events of synaptic transmission in proper chronological order.

89) Curare is a competitive ACh antagonist at _____ ACh receptors.

- A) muscarinic
- B) NMDA
- C) kainate
- D) nicotinic

Answer: D

Section: 07.04

Topic: Clinical applications of the nervous system; Neurotransmitters and their roles in synaptic transmission

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H05.05 Discuss the relationship between a neurotransmitter and its receptor.; H05.07 Describe the events of synaptic transmission in proper chronological order.

90) Cholinergic fibers use _____ as the neurotransmitter.

- A) norepinephrine
- B) acetylcholine
- C) dopamine
- D) serotonin

Answer: B

Section: 07.04

Topic: Neurotransmitters and their roles in synaptic transmission

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H05.05 Discuss the relationship between a neurotransmitter and its receptor.;
H05.07 Describe the events of synaptic transmission in proper chronological order.

91) What type of autonomic fibers release ACh at effectors?

- A) Parasympathetic
- B) Sympathetic
- C) Somatic
- D) Sensory

Answer: A

Section: 07.04

Topic: Anatomy of the parasympathetic division of the ANS; Neurotransmitters and their roles in synaptic transmission

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H14.03 Name the neurotransmitters released at synapses with effector organs in the somatic and autonomic motor pathways and classify each effector response as excitatory or inhibitory.

92) Release of ACh at parasympathetic effectors is always stimulatory.

Answer: FALSE

Section: 07.04

Topic: Anatomy of the parasympathetic division of the ANS; Neurotransmitters and their roles in synaptic transmission

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: H14.03 Name the neurotransmitters released at synapses with effector organs in the somatic and autonomic motor pathways and classify each effector response as excitatory or inhibitory.

93) At what region of the neuron are action potentials first produced?

- A) Dendrites
- B) Cell body
- C) Initial segment of an axon
- D) Axon hillock

Answer: C

Section: 07.04

Topic: Physiology of nerve impulse transmission

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H05.07 Describe the events of synaptic transmission in proper chronological order.

94) What is present at the axon hillock that allows the production of action potentials?

- A) Voltage-gated channels
- B) Ligand-gated channels
- C) Muscarinic receptors
- D) Chemical-gated channels

Answer: A

Section: 07.04

Topic: Physiology of nerve impulse transmission

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H04.06d Describe the voltage-gated ion channels that are essential for development of the action potential.

95) What is NOT true of conduction through dendrites and cell bodies of neurons?

- A) It creates EPSPs.
- B) It is spread by cable properties.
- C) EPSPs can summate to reach threshold.
- D) It generates action potentials in the cell body.

Answer: D

Section: 07.04

Topic: Neural integration in the CNS; Physiology of nerve impulse transmission

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: H04.07 Discuss the sequence of events that must occur for an action potential to be generated.; H05.08 Define excitatory postsynaptic potential (EPSP) and inhibitory postsynaptic potential (IPSP) and interpret graphs showing the voltage vs. time relationship of an EPSP and an IPSP.

96) Which of the following is NOT classified as a catecholamine?

- A) Norepinephrine
- B) Epinephrine
- C) Histamine
- D) Dopamine

Answer: C

Section: 07.05

Topic: Neurotransmitters and their roles in synaptic transmission

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H05.15 List the most common excitatory neurotransmitter(s) in the CNS and the most common inhibitory neurotransmitter(s) in the CNS.

97) From which amino acid are dopamine, norepinephrine, and epinephrine all derived?

- A) Histidine
- B) Tyrosine
- C) Tryptophan
- D) Serine

Answer: B

Section: 07.05

Topic: Neurotransmitters and their roles in synaptic transmission

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H05.15 List the most common excitatory neurotransmitter(s) in the CNS and the most common inhibitory neurotransmitter(s) in the CNS.

98) Histamine is able to _____.

- A) act as a neurotransmitter to cause skeletal muscle contraction
- B) act as a hormone that inhibits gastric secretion
- C) act as a neurotransmitter in the brain to cause drowsiness
- D) act as a regulator in inflammation and allergies

Answer: D

Section: 07.05

Topic: Neurotransmitters and their roles in synaptic transmission

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H05.15 List the most common excitatory neurotransmitter(s) in the CNS and the most common inhibitory neurotransmitter(s) in the CNS.

99) Norepinephrine binding to a receptor stimulates the activity of adenylate cyclase.

Answer: TRUE

Section: 07.05

Topic: Neurotransmitters and their roles in synaptic transmission

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H05.05 Discuss the relationship between a neurotransmitter and its receptor.; H05.15 List the most common excitatory neurotransmitter(s) in the CNS and the most common inhibitory neurotransmitter(s) in the CNS.

100) Serotonin is synthesized from the amino acid _____.

A) alanine

B) glycine

C) tryptophan

D) serine

Answer: C

Section: 07.05

Topic: Neurotransmitters and their roles in synaptic transmission

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H05.15 List the most common excitatory neurotransmitter(s) in the CNS and the most common inhibitory neurotransmitter(s) in the CNS.

101) A patient is prescribed an MAO inhibitor by their doctor. Knowing the actions of MAO inhibitors, this patient's diagnosis may be _____.

A) hypertension, since MAO inhibitors block the release of norepinephrine from sympathetic axons

B) hypertension, since MAO inhibitors block the degradation of norepinephrine at the synapse

C) depression, since MAO inhibitors block the binding of serotonin to postsynaptic cells

D) depression, since MAO inhibitors block the degradation of serotonin at the synapse

Answer: D

Section: 07.05

Topic: Neurotransmitters and their roles in synaptic transmission

Bloom's: 4. Analyze

Accessibility: Keyboard Navigation

HAPS Outcome: H05.15 List the most common excitatory neurotransmitter(s) in the CNS and the most common inhibitory neurotransmitter(s) in the CNS.

102) Catecholamines activate postsynaptic cells by _____.

- A) inhibition of adenylate cyclase
- B) increased Ca^{2+} influx into the target cell
- C) inhibition of calmodulin
- D) increased production of cyclic AMP

Answer: D

Section: 07.05

Topic: Neurotransmitters and their roles in synaptic transmission

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: H05.05 Discuss the relationship between a neurotransmitter and its receptor.; H05.15 List the most common excitatory neurotransmitter(s) in the CNS and the most common inhibitory neurotransmitter(s) in the CNS.

103) What neurotransmitter is used by neurons with cell bodies in the raphe nuclei along the midline of the brainstem?

- A) Serotonin
- B) Dopamine
- C) Glycine
- D) GABA

Answer: A

Section: 07.05

Topic: Neurotransmitters and their roles in synaptic transmission

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H05.15 List the most common excitatory neurotransmitter(s) in the CNS and the most common inhibitory neurotransmitter(s) in the CNS.

104) The _____ dopamine system may be involved in emotional reward and drug addiction.

- A) nigrostriatal
- B) mesolimbic
- C) amygdala
- D) dentate

Answer: B

Section: 07.05

Topic: Neural integration in the CNS; Neurotransmitters and their roles in synaptic transmission

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H05.16 Propose a possible CNS function for each biogenic amine neurotransmitter.

105) A patient with Parkinson disease will have difficulty initiating skeletal muscle movements because the nigrostriatal dopamine system, degenerated in Parkinson disease, is part of the primary motor cortex.

Answer: FALSE

Section: 07.05

Topic: Clinical applications of the nervous system; Division, origin, and function of parts of the brain

Bloom's: 3. Apply

Accessibility: Keyboard Navigation

HAPS Outcome: H05.16 Propose a possible CNS function for each biogenic amine neurotransmitter.

106) Parkinson disease is associated with the loss of dopaminergic neurons.

Answer: TRUE

Section: 07.05

Topic: Clinical applications of the nervous system; Neurotransmitters and their roles in synaptic transmission

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H16.02 Predict the types of problems that would occur in the body if the nervous system could not maintain homeostasis

107) Neuroleptics, which are used to treat schizophrenia, are _____.

- A) dopamine agonists
- B) ACh antagonists
- C) dopamine antagonists
- D) glutamate agonists

Answer: C

Section: 07.05

Topic: Clinical applications of the nervous system; Neurotransmitters and their roles in synaptic transmission

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H05.16 Propose a possible CNS function for each biogenic amine neurotransmitter.

108) Addictive drugs, as well as nicotine, activate dopamine release in the _____.

- A) nucleus accumbens
- B) corpus striatum
- C) basal nuclei
- D) corpus callosum

Answer: A

Section: 07.05

Topic: Clinical applications of the nervous system; Neurotransmitters and their roles in synaptic transmission

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H05.16 Propose a possible CNS function for each biogenic amine neurotransmitter.

109) Cocaine is particularly dangerous for patients with cardiovascular disease, or hypertension, because _____.

- A) it blocks the reuptake of serotonin and dopamine, causing excessive bouts of euphoria
- B) it inhibits the degradation of norepinephrine, causing coronary artery constriction
- C) it blocks membrane sodium channels, causing increased EPSPs
- D) it blocks the reuptake of norepinephrine, causing increased heart rate

Answer: D

Section: 07.05

Topic: Clinical applications of the nervous system; Neurotransmitters and their roles in synaptic transmission

Bloom's: 4. Analyze

Accessibility: Keyboard Navigation

HAPS Outcome: H05.16 Propose a possible CNS function for each biogenic amine neurotransmitter.

110) Choose the incorrect statement about norepinephrine.

- A) It is released in both the central and peripheral nervous systems.
- B) It is released by sympathetic neurons to smooth muscle, cardiac muscle, and glands.
- C) Norepinephrine pathways are stimulated by amphetamines.
- D) It is released from adrenergic neurons in the parasympathetic nervous system.

Answer: D

Section: 07.05

Topic: Neurotransmitters and their roles in synaptic transmission

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: H05.15 List the most common excitatory neurotransmitter(s) in the CNS and the most common inhibitory neurotransmitter(s) in the CNS.

111) Mutation of the N-methyl-D-aspartate (NMDA) receptor would affect the ability of _____ to regulate neural function.

- A) acetylcholine
- B) epinephrine
- C) glutamate
- D) nitric oxide

Answer: C

Section: 07.06

Topic: Clinical applications of the nervous system; Neurotransmitters and their roles in synaptic transmission

Bloom's: 3. Apply

Accessibility: Keyboard Navigation

HAPS Outcome: H05.14 Describe the mechanism by which neurotransmitters may have indirect (metabotropic) effects on postsynaptic cells.

112) Excitatory postsynaptic potentials are produced in the brain primarily by _____.

- A) glycine
- B) glutamic acid
- C) gamma-aminobutyric acid
- D) benzodiazepines

Answer: B

Section: 07.06

Topic: Neurotransmitters and their roles in synaptic transmission

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H05.14 Describe the mechanism by which neurotransmitters may have indirect (metabotropic) effects on postsynaptic cells.; H05.15 List the most common excitatory neurotransmitter(s) in the CNS and the most common inhibitory neurotransmitter(s) in the CNS.

113) Which of the following is NOT an action needed for glutamate to open ion channels?

- A) NMDA receptor must bind to glycine.
- B) The membrane must be partially depolarized from the action of a different neurotransmitter.
- C) Cl^- must pass through the open channel.
- D) Mg^{2+} is released from NMDA channel to open it.

Answer: C

Section: 07.06

Topic: Neurotransmitters and their roles in synaptic transmission

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: H05.14 Describe the mechanism by which neurotransmitters may have indirect (metabotropic) effects on postsynaptic cells.

114) Glycine and GABA act as inhibitory neurotransmitters in the CNS because they bind to Cl⁻ channels on the postsynaptic membrane.

Answer: TRUE

Section: 07.06

Topic: Neurotransmitters and their roles in synaptic transmission

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: H05.14 Describe the mechanism by which neurotransmitters may have indirect (metabotropic) effects on postsynaptic cells.

115) Where is glycine released?

A) In the PNS

B) From the motor neurons innervating skeletal muscles

C) In the CNS

D) At the diaphragm

Answer: C

Section: 07.06

Topic: Neurotransmitters and their roles in synaptic transmission

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H05.15 List the most common excitatory neurotransmitter(s) in the CNS and the most common inhibitory neurotransmitter(s) in the CNS.

116) Benzodiazepines act by increasing _____ activity.

A) GABA

B) glutamate

C) ACh

D) enkephalin

Answer: A

Section: 07.06

Topic: Clinical applications of the nervous system; Neurotransmitters and their roles in synaptic transmission

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H05.14 Describe the mechanism by which neurotransmitters may have indirect (metabotropic) effects on postsynaptic cells.

117) Which poison inhibits glycine receptors?

- A) Strychnine
- B) Curare
- C) Tetrodotoxin
- D) All of the choices are correct.

Answer: A

Section: 07.06

Topic: Clinical applications of the nervous system; Neurotransmitters and their roles in synaptic transmission

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H05.14 Describe the mechanism by which neurotransmitters may have indirect (metabotropic) effects on postsynaptic cells.

118) The most common neurotransmitter in the brain is _____.

- A) glycine
- B) acetylcholine
- C) serotonin
- D) GABA

Answer: D

Section: 07.06

Topic: Neurotransmitters and their roles in synaptic transmission

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H05.15 List the most common excitatory neurotransmitter(s) in the CNS and the most common inhibitory neurotransmitter(s) in the CNS.

119) The capacity of synapses for alteration at the molecular level is termed _____.

- A) synaptic modulation
- B) synaptic alteration
- C) synaptic capacitance
- D) synaptic plasticity

Answer: D

Section: 07.07

Topic: Neurotransmitters and their roles in synaptic transmission

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H15.01 Provide specific examples to demonstrate how the nervous system responds to maintain homeostasis in the body.

120) CCK (cholecystokinin) may act as a neurotransmitter in the brain to promote feelings of satiety.

Answer: TRUE

Section: 07.06

Topic: Neurotransmitters and their roles in synaptic transmission; Hormonal and neural regulation of digestive processes

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H05.14 Describe the mechanism by which neurotransmitters may have indirect (metabotropic) effects on postsynaptic cells.

121) Exogenous and endogenous opioids have both similar and varying effects. Choose the statement that correctly summarizes their differences.

A) Exogenous, but not endogenous, can block transmissions of pain.

B) Naloxone has been shown to block the proven actions of both exogenous and endogenous opioids.

C) Endogenous are found in the CNS, whereas exogenous are released from neurons in the PNS.

D) Like exogenous opioids like morphine, endogenous opioids cause strong feelings of euphoria.

Answer: B

Section: 07.06

Topic: Clinical applications of the nervous system; Neurotransmitters and their roles in synaptic transmission

Bloom's: 4. Analyze

Accessibility: Keyboard Navigation

HAPS Outcome: H05.14 Describe the mechanism by which neurotransmitters may have indirect (metabotropic) effects on postsynaptic cells.

122) Which of the following are natural analgesics?

A) Endorphins

B) Enkephalins

C) Dynorphins

D) All of the choices are correct.

Answer: D

Section: 07.06

Topic: Clinical applications of the nervous system; Neurotransmitters and their roles in synaptic transmission

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H05.14 Describe the mechanism by which neurotransmitters may have indirect (metabotropic) effects on postsynaptic cells.

123) The most abundant neuropeptide in the brain is _____.

- A) neuropeptide Y
- B) neuropeptide Z
- C) substance P
- D) CCK

Answer: A

Section: 07.06

Topic: Neurotransmitters and their roles in synaptic transmission

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H05.14 Describe the mechanism by which neurotransmitters may have indirect (metabotropic) effects on postsynaptic cells.

124) Inhibition of neuropeptide Y synthesis would _____.

- A) induce euphoria
- B) induce obesity
- C) stimulate leptin secretion
- D) inhibit eating

Answer: D

Section: 07.06

Topic: Clinical applications of the nervous system; Neurotransmitters and their roles in synaptic transmission

Bloom's: 3. Apply

Accessibility: Keyboard Navigation

HAPS Outcome: H05.14 Describe the mechanism by which neurotransmitters may have indirect (metabotropic) effects on postsynaptic cells.

125) The brain produces lipid neurotransmitters called _____.

- A) endocannabinoids
- B) endorphins
- C) enkephalins
- D) nitric oxide

Answer: A

Section: 07.06

Topic: Neurotransmitters and their roles in synaptic transmission

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H05.16 Propose a possible CNS function for each biogenic amine neurotransmitter.

- 126) Endocannabinoids are retrograde neurotransmitters, meaning they are _____.
- A) released from presynaptic neurons and diffuse to the postsynaptic neuron
 - B) released from postsynaptic neurons and diffuse to the presynaptic neuron
 - C) released from presynaptic neurons and diffuse back to the presynaptic cell body
 - D) None of the choices are correct.

Answer: B

Section: 07.06

Topic: Neurotransmitters and their roles in synaptic transmission

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: H05.14 Describe the mechanism by which neurotransmitters may have indirect (metabotropic) effects on postsynaptic cells.

- 127) Relaxation of cerebral blood vessels would be stimulated by excessive _____ activity.
- A) nitric oxide
 - B) acetylcholine
 - C) norepinephrine
 - D) glutamate

Answer: A

Section: 07.06

Topic: Neurotransmitters and their roles in synaptic transmission

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: H05.14 Describe the mechanism by which neurotransmitters may have indirect (metabotropic) effects on postsynaptic cells.

- 128) Nitric oxide _____.
- A) is a chemical messenger activating adenylate cyclase
 - B) stimulates the dilation of blood vessels
 - C) is produced from L-asparagine
 - D) All of the choices are correct.

Answer: B

Section: 07.06

Topic: Neurotransmitters and their roles in synaptic transmission

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H05.14 Describe the mechanism by which neurotransmitters may have indirect (metabotropic) effects on postsynaptic cells.

129) Which gas(es) can function as a neurotransmitter?

- A) carbon dioxide
- B) nitric oxide
- C) carbon monoxide
- D) Both nitric oxide and carbon monoxide

Answer: D

Section: 07.06

Topic: Neurotransmitters and their roles in synaptic transmission

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H05.14 Describe the mechanism by which neurotransmitters may have indirect (metabotropic) effects on postsynaptic cells.

130) ATP and adenosine can act as neurotransmitters _____.

- A) when no ACh is available
- B) when released by adrenergic neurons during sympathetic activation
- C) after being used for energy by the cell
- D) All of the choices are correct.

Answer: B

Section: 07.06

Topic: Neurotransmitters and their roles in synaptic transmission

Bloom's: 3. Apply

Accessibility: Keyboard Navigation

HAPS Outcome: H05.14 Describe the mechanism by which neurotransmitters may have indirect (metabotropic) effects on postsynaptic cells.

131) What type of receptors will bind ATP and adenosine?

- A) Cotransmitter receptors
- B) Pyrimenergic receptors
- C) Purinergic receptors
- D) None of the choices are correct.

Answer: C

Section: 07.06

Topic: Neurotransmitters and their roles in synaptic transmission

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H05.05 Discuss the relationship between a neurotransmitter and its receptor.; H05.14 Describe the mechanism by which neurotransmitters may have indirect (metabotropic) effects on postsynaptic cells.

132) Spatial summation _____.

- A) occurs when a single neuron releases neurotransmitter rapidly
- B) occurs because of the convergence of many neurons on a single postsynaptic cell
- C) only involves excitatory postsynaptic potentials
- D) only involves inhibitory postsynaptic potentials

Answer: B

Section: 07.07

Topic: Neural integration in the CNS; Neurotransmitters and their roles in synaptic transmission

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H05.09 Explain temporal and spatial summation of synaptic potentials.

133) Temporal summation _____.

- A) occurs when a single neuron releases neurotransmitter rapidly
- B) occurs because of the convergence of many neurons on a single postsynaptic cell
- C) only involves excitatory postsynaptic potentials
- D) only involves inhibitory postsynaptic potentials

Answer: A

Section: 07.07

Topic: Neural integration in the CNS; Neurotransmitters and their roles in synaptic transmission

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H05.09 Explain temporal and spatial summation of synaptic potentials.

134) Both excitatory and inhibitory postsynaptic potentials undergo summation.

Answer: TRUE

Section: 07.07

Topic: Neural integration in the CNS; Neurotransmitters and their roles in synaptic transmission

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H05.09 Explain temporal and spatial summation of synaptic potentials.

- 135) Excitotoxicity is caused by _____.
- A) insufficient synaptic release of glutamate
 - B) excessive synaptic release of glutamate
 - C) GABA inhibition
 - D) insufficient synaptic release of ACh

Answer: B

Section: 07.07

Topic: Neurotransmitters and their roles in synaptic transmission

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: H05.09 Explain temporal and spatial summation of synaptic potentials.

- 136) Both long-term potentiation and long-term depression require the release of _____ from the postsynaptic neuron membrane.
- A) Cl^-
 - B) K^+
 - C) Ca^{2+}
 - D) Mg^{2+}

Answer: C

Section: 07.07

Topic: Neurotransmitters and their roles in synaptic transmission

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H05.09 Explain temporal and spatial summation of synaptic potentials.

- 137) The varied strength of synaptic transmission is called _____.
- A) spatial summation
 - B) temporal summation
 - C) synaptic plasticity
 - D) EPSP

Answer: C

Section: 07.07

Topic: Neural integration in the CNS; Neurotransmitters and their roles in synaptic transmission

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H05.10 Explain how movement of sodium ions alone, or movement of both sodium and potassium ions, across the postsynaptic cell membrane can excite a neuron.

138) Enhancing the excitability of a synapse so that transmission is favored along certain pathways is called _____.

- A) long-term potentiation
- B) synaptic plasticity
- C) excitotoxicity
- D) summation

Answer: A

Section: 07.07

Topic: Neural integration in the CNS; Neurotransmitters and their roles in synaptic transmission

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H05.10 Explain how movement of sodium ions alone, or movement of both sodium and potassium ions, across the postsynaptic cell membrane can excite a neuron.; H15.01 Provide specific examples to demonstrate how the nervous system responds to maintain homeostasis in the body.

139) Synaptic plasticity involves structural changes in neurons, such as _____.

- A) formation of axillary branches
- B) formation of dendritic spines
- C) formation of more axon terminals
- D) mitosis of neurons

Answer: B

Section: 07.07

Topic: Microscopic anatomy of neurons

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H15.01 Provide specific examples to demonstrate how the nervous system responds to maintain homeostasis in the body.

140) What event(s) could cause presynaptic inhibition?

- A) Inactivation of Ca^{2+} channels
- B) A second neuron causes a reduction in neurotransmitter release from another neuron
- C) Removal of SNARE complexes
- D) All of the choices are correct.

Answer: D

Section: 07.07

Topic: Neurotransmitters and their roles in synaptic transmission

Bloom's: 3. Apply

Accessibility: Keyboard Navigation

HAPS Outcome: H05.10 Explain how movement of sodium ions alone, or movement of both sodium and potassium ions, across the postsynaptic cell membrane can excite a neuron.

141) Which of the following is NOT true of long-term potentiation (LTP)?

- A) Associated with the removal of AMPA glutamate receptors
- B) Repeated stimulation enhance excitability
- C) Associated with insertion of AMPA glutamate receptors
- D) It is a form of synaptic plasticity

Answer: A

Section: 07.07

Topic: Neurotransmitters and their roles in synaptic transmission

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: H05.10 Explain how movement of sodium ions alone, or movement of both sodium and potassium ions, across the postsynaptic cell membrane can excite a neuron.

142) What type of neural pathway involves one neuron forming synapses with several postsynaptic neurons?

- A) Convergent
- B) Oscillating
- C) Divergent
- D) Plastic

Answer: C

Section: 07.07

Topic: Neurotransmitters and their roles in synaptic transmission

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H05.09 Explain temporal and spatial summation of synaptic potentials.

Human Physiology, 15e (Fox)
Chapter 8 The Central Nervous System

1) The neural tube and neural crest cells are of endodermal origin.

Answer: FALSE

Section: 08.01

Topic: Development of the nervous system

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H07.01 List the five developmental regions of the brain and identify the major areas of the adult brain that arise from each region.

2) The forebrain develops into the telencephalon and the diencephalon.

Answer: TRUE

Section: 08.01

Topic: Development of the nervous system

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H07.01 List the five developmental regions of the brain and identify the major areas of the adult brain that arise from each region.

3) A patient is diagnosed with Multiple Sclerosis, which causes a loss of myelination of the axons in the brain. This would interfere with transmission of information between nuclei.

Answer: TRUE

Section: 08.01

Topic: Clinical applications of the nervous system; Integrative functions of the brain

Bloom's: 1. Remember; 3. Apply

Accessibility: Keyboard Navigation

HAPS Outcome: H07.02 Correlate functions with each major area of the adult brain.

4) The cerebral cortex is composed of superficial white matter with underlying gray matter.

Answer: FALSE

Section: 08.01

Topic: Gross anatomy of the components of the brain

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H07.02 Correlate functions with each major area of the adult brain.; H10.03 Contrast the relative position of gray matter and white matter in the spinal cord with the corresponding arrangement of gray and white matter in the brain.

5) Gray matter is found only in the cerebral cortex.

Answer: FALSE

Section: 08.01

Topic: Gross anatomy of the components of the brain

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H10.03 Contrast the relative position of gray matter and white matter in the spinal cord with the corresponding arrangement of gray and white matter in the brain.

6) The midbrain forms from the _____.

A) telencephalon

B) mesencephalon

C) myelencephalon

D) diencephalon

Answer: B

Section: 08.01

Topic: Development of the nervous system

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H07.01 List the five developmental regions of the brain and identify the major areas of the adult brain that arise from each region.

7) The cerebellum forms from the _____.

A) telencephalon

B) metencephalon

C) myelencephalon

D) diencephalon

Answer: B

Section: 08.01

Topic: Development of the nervous system

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H07.01 List the five developmental regions of the brain and identify the major areas of the adult brain that arise from each region.

- 8) Cerebrospinal fluid is found _____.
- A) within the central canal
 - B) within the ventricles
 - C) within the olfactory bulbs
 - D) Both within the central canal and within the ventricles.

Answer: D

Section: 08.01

Topic: Anatomy of the spinal cord and spinal nerves; Gross anatomy of the components of the brain

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H08.03 Describe the functions of cerebrospinal fluid, as well as the details of its production, its circulation within the central nervous system, and its ultimate reabsorption into the bloodstream.; H10.02 Identify the anatomical features seen in a cross sectional view of the spinal cord.

- 9) The function of _____ is to link sensory stimuli with the appropriate motor responses.
- A) bipolar neurons
 - B) interneurons
 - C) motor neurons
 - D) pseudounipolar neurons

Answer: B

Section: 08.01

Topic: Physiology of sensory and motor pathways in the brain and spinal cord

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H10.01 Describe the gross anatomy of the spinal cord and spinal nerves and specify their location relative to the anatomy of the skeletal system.

- 10) The total percentage of blood flow to the body per minute that goes to the brain is _____.
- A) 15
 - B) 20
 - C) 25
 - D) 30

Answer: A

Section: 08.01

Topic: Gross anatomy of the components of the brain; Systemic blood circulation

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K14.10a Explain how autoregulation controls blood flow to individual tissues.

11) If the neural tube failed to develop properly, CSF production and circulation could be compromised.

Answer: TRUE

Section: 08.01

Topic: Development of the nervous system

Bloom's: 1. Remember; 3. Apply

Accessibility: Keyboard Navigation

HAPS Outcome: H07.01 List the five developmental regions of the brain and identify the major areas of the adult brain that arise from each region.

12) Neural stem cells in adult mammalian brains are found in the _____.

A) cerebral cortex

B) subventricular zone

C) midbrain

D) subgranular zone

E) Both the subventricular and subgranular zones.

Answer: E

Section: 08.01

Topic: Development of the nervous system; Division, origin, and function of parts of the brain

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H07.04 Identify the five lobes of the cerebral cortex and describe how the motor and sensory functions of the cerebrum are distributed among the lobes.

13) Which area of the brain contains neural stem cells that are apparently important in learning and memory?

A) Arcuate fasciculus

B) Subgranular zone of the hippocampus

C) Temporal lobe

D) Cerebral cortex

Answer: B

Section: 08.01

Topic: Development of the nervous system; Division, origin, and function of parts of the brain

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H07.04 Identify the five lobes of the cerebral cortex and describe how the motor and sensory functions of the cerebrum are distributed among the lobes.

14) Communication between the cerebrum and cerebellum is facilitated by the corpus callosum.

Answer: FALSE

Section: 08.02

Topic: Gross anatomy of the components of the brain; Integrative functions of the brain

Bloom's: 1. Remember; 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: H07.04 Identify the five lobes of the cerebral cortex and describe how the motor and sensory functions of the cerebrum are distributed among the lobes.; H07.06 Discuss the concept of cerebral hemispheric specialization and the role of the corpus callosum in connecting the two halves of the cerebrum.

15) Damage to the parietal lobe of the cerebrum would impair the ability to distinguish between different types of sensations.

Answer: TRUE

Section: 08.02

Topic: Clinical applications of the nervous system; Division, origin, and function of parts of the brain

Bloom's: 1. Remember; 3. Apply

Accessibility: Keyboard Navigation

HAPS Outcome: H07.04 Identify the five lobes of the cerebral cortex and describe how the motor and sensory functions of the cerebrum are distributed among the lobes.; H16.02 Predict the types of problems that would occur in the body if the nervous system could not maintain homeostasis.

16) Choose the complete list of lobes of the cerebrum.

- A) Insula, temporal, parietal, pons, and occipital
- B) Temporal, frontal, insula, cerebellum, occipital
- C) Frontal, parietal, temporal, insula, occipital
- D) Cerebrum, midbrain, thalamus, pons, medulla oblongata

Answer: C

Section: 08.02

Topic: Division, origin, and function of parts of the brain

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H07.04 Identify the five lobes of the cerebral cortex and describe how the motor and sensory functions of the cerebrum are distributed among the lobes.

17) The _____ is a cerebral lobe that is involved in memory and integration of sensory information (mostly pain) with visceral responses.

- A) temporal
- B) frontal
- C) parietal
- D) insula

Answer: D

Section: 08.02

Topic: Division, origin, and function of parts of the brain; Integrative functions of the brain

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H07.04 Identify the five lobes of the cerebral cortex and describe how the motor and sensory functions of the cerebrum are distributed among the lobes.

18) Choose the statement that characterizes the cerebral cortex.

- A) Sensations from the feet would be on the most inferior area of the somatesthetic cortex.
- B) Areas of the body with the greatest density of receptors will have larger areas on the somatesthetic cortex.
- C) The hands and feet have a similar density of receptors.
- D) Damage to the left side of the motor cortex would impair muscular control on the left side of the body.

Answer: B

Section: 08.02

Topic: Division, origin, and function of parts of the brain

Bloom's: 1. Remember; 4. Analyze

Accessibility: Keyboard Navigation

HAPS Outcome: H07.04 Identify the five lobes of the cerebral cortex and describe how the motor and sensory functions of the cerebrum are distributed among the lobes.; H07.05 Explain why the sensory and motor homunculi are relevant clinically.

- 19) Damage to the temporal lobe of the cerebrum would have the greatest impact on _____.
- A) voluntary skeletal muscle contraction
 - B) integration of cerebral activities
 - C) hearing
 - D) vision

Answer: C

Section: 08.02

Topic: Clinical applications of the nervous system; Division, origin, and function of parts of the brain

Bloom's: 1. Remember; 3. Apply

Accessibility: Keyboard Navigation

HAPS Outcome: H07.04 Identify the five lobes of the cerebral cortex and describe how the motor and sensory functions of the cerebrum are distributed among the lobes.; H16.02 Predict the types of problems that would occur in the body if the nervous system could not maintain homeostasis.

- 20) What type of neurons are found in the precentral gyrus?
- A) Sensory neurons
 - B) Lower motor neurons
 - C) Upper motor neurons
 - D) Middle motor neurons

Answer: C

Section: 08.02

Topic: Gross anatomy of the components of the brain

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H07.04 Identify the five lobes of the cerebral cortex and describe how the motor and sensory functions of the cerebrum are distributed among the lobes.; H12.02 Describe the locations and functions of the upper and lower motor neurons in a motor pathway.

- 21) What structure separates the frontal and parietal lobes?
- A) Corpus callosum
 - B) Central sulcus
 - C) Lateral sulcus
 - D) Longitudinal fissure

Answer: B

Section: 08.02

Topic: Division, origin, and function of parts of the brain

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H07.04 Identify the five lobes of the cerebral cortex and describe how the motor and sensory functions of the cerebrum are distributed among the lobes.

22) A raised area on the cerebral cortex is a _____.

- A) sulcus
- B) fissure
- C) gyrus
- D) mirror neuron

Answer: C

Section: 08.02

Topic: Gross anatomy of the components of the brain

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H07.04 Identify the five lobes of the cerebral cortex and describe how the motor and sensory functions of the cerebrum are distributed among the lobes.

23) A dysfunction of _____ neurons would limit the ability to learn from and mimic the dance steps of an instructor.

- A) sensory neurons
- B) motor neurons
- C) interneurons
- D) mirror neurons

Answer: D

Section: 08.02

Topic: Division, origin, and function of parts of the brain

Bloom's: 1. Remember; 3. Apply

Accessibility: Keyboard Navigation

HAPS Outcome: H07.04 Identify the five lobes of the cerebral cortex and describe how the motor and sensory functions of the cerebrum are distributed among the lobes.

24) A(n) _____ would detect increased activity in the brain in response to stimuli.

- A) computed tomography scan
- B) electroencephalogram
- C) functional magnetic resonance imaging scan
- D) positron emission tomography scan

Answer: C

Section: 08.02

Topic: Clinical applications of the nervous system

Bloom's: 1. Remember; 3. Apply

Accessibility: Keyboard Navigation

HAPS Outcome: H07.04 Identify the five lobes of the cerebral cortex and describe how the motor and sensory functions of the cerebrum are distributed among the lobes.

25) Brain metabolism may be best studied by _____.

- A) electroencephalography
- B) computed tomography
- C) magnetic resonance imaging
- D) positron-emission tomography

Answer: D

Section: 08.02

Topic: Clinical applications of the nervous system

Bloom's: 1. Remember; 3. Apply

Accessibility: Keyboard Navigation

HAPS Outcome: H07.04 Identify the five lobes of the cerebral cortex and describe how the motor and sensory functions of the cerebrum are distributed among the lobes.

26) Abnormalities found on a(n) _____ may signify disturbances in the ability of neurons to communicate properly.

- A) computed tomograph scan
- B) electroencephalogram
- C) magnetic resonance image
- D) positron-emission tomograph

Answer: B

Section: 08.02

Topic: Clinical applications of the nervous system

Bloom's: 1. Remember; 3. Apply

Accessibility: Keyboard Navigation

HAPS Outcome: H07.04 Identify the five lobes of the cerebral cortex and describe how the motor and sensory functions of the cerebrum are distributed among the lobes.

27) Which type of EEG pattern in an awake adult is indicative of brain damage?

- A) Alpha waves
- B) Beta waves
- C) Theta waves
- D) Delta waves

Answer: D

Section: 08.02

Topic: Clinical applications of the nervous system

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H07.04 Identify the five lobes of the cerebral cortex and describe how the motor and sensory functions of the cerebrum are distributed among the lobes.

28) An electroencephalogram obtained from an adult who is thinking would probably display many _____ waves.

- A) alpha
- B) beta
- C) delta
- D) theta

Answer: B

Section: 08.02

Topic: Clinical applications of the nervous system

Bloom's: 1. Remember; 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: H07.04 Identify the five lobes of the cerebral cortex and describe how the motor and sensory functions of the cerebrum are distributed among the lobes.

29) REM sleep is unique from other stages in that _____.

- A) memory consolidation can occur
- B) it causes ideal rest, without emotional activation
- C) breathing and heart rate mimic the patterns during waking hours
- D) learning from activities during the day occurs

Answer: C

Section: 08.02

Topic: Integrative functions of the brain

Bloom's: 1. Remember; 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: H07.04 Identify the five lobes of the cerebral cortex and describe how the motor and sensory functions of the cerebrum are distributed among the lobes.; H07.08 Describe the parts of the brain involved in storage of long term memory and discuss possible mechanisms of memory consolidation.

30) Impairment of voluntary movements is absolutely indicative of damage to the basal nuclei.

Answer: FALSE

Section: 08.02

Topic: Clinical applications of the nervous system

Bloom's: 1. Remember; 3. Apply

Accessibility: Keyboard Navigation

HAPS Outcome: H07.02 Correlate functions with each major area of the adult brain.

31) Chorea is most likely to result from damage to the _____.

- A) caudate nucleus
- B) premotor cortex
- C) primary motor cortex
- D) insula

Answer: A

Section: 08.02

Topic: Clinical applications of the nervous system

Bloom's: 1. Remember; 3. Apply

Accessibility: Keyboard Navigation

HAPS Outcome: H07.02 Correlate functions with each major area of the adult brain.; H16.02 Predict the types of problems that would occur in the body if the nervous system could not maintain homeostasis.

32) The basal nuclei include the _____.

- A) corpus striatum
- B) supraoptic nucleus
- C) reticular formation
- D) All of the choices are correct.

Answer: A

Section: 08.02

Topic: Gross anatomy of the components of the brain

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H07.02 Correlate functions with each major area of the adult brain.

33) Impaired motor coordination in Parkinson disease is often due to _____.

- A) degeneration of the red nucleus
- B) degeneration of the substantia nigra
- C) lack of regulation of the cerebral peduncle
- D) degeneration of the mesolimbic system

Answer: B

Section: 08.02

Topic: Clinical applications of the nervous system; Physiology of sensory and motor pathways in the brain and spinal cord

Bloom's: 1. Remember; 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: H07.02 Correlate functions with each major area of the adult brain.

34) Which neurotransmitter is NOT associated with basal nuclei function?

- A) Dopamine
- B) GABA
- C) Acetylcholine
- D) Glutamate

Answer: C

Section: 08.02

Topic: Division, origin, and function of parts of the brain; Neurotransmitters and their role in synaptic transmission

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H05.16 List the most common excitatory neurotransmitters in the CNS and the most common inhibitory neurotransmitters in the CNS.

35) In most most individuals, writing skills would be impaired if damage to the _____ occurred.

- A) right cerebral hemisphere
- B) left cerebral hemisphere
- C) corpus callosum
- D) None of the choices are correct.

Answer: B

Section: 08.02

Topic: Neural integration in the CNS; Physiology of sensory and motor pathways in the brain and spinal cord

Bloom's: 1. Remember; 4. Analyze

Accessibility: Keyboard Navigation

HAPS Outcome: H07.02 Correlate functions with each major area of the adult brain.; H07.06 Discuss the concept of cerebral hemispheric specialization and the role of the corpus callosum in connecting the two halves of the cerebrum.

36) Recognition of your best friend's face is a function of _____ cerebral hemisphere(s).

- A) the right
- B) the left
- C) both

Answer: A

Section: 08.02

Topic: Neural integration in the CNS

Bloom's: 1. Remember; 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: H07.02 Correlate functions with each major area of the adult brain.; H07.06 Discuss the concept of cerebral hemispheric specialization and the role of the corpus callosum in connecting the two halves of the cerebrum.

- 37) What is the function of the motor circuit in the brain?
- A) Allows for adjustment of movement to meet the demands of a task
 - B) Inhibits excessive stimuli from reaching the cerebral cortex
 - C) Activates the RAS
 - D) Helps coordinate the timing and force of joint movements

Answer: A

Section: 08.02

Topic: Neural integration in the CNS

Bloom's: 1. Remember; 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: H07.04 Identify the five lobes of the cerebral cortex and describe how the motor and sensory functions of the cerebrum are distributed among the lobes.

- 38) A person with damage to the left cerebral hemisphere could have several speaking problems, but yet have no problems with singing.

Answer: TRUE

Section: 08.02

Topic: Neural integration in the CNS

Bloom's: 1. Remember; 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: H07.02 Correlate functions with each major area of the adult brain.; H07.06 Discuss the concept of cerebral hemispheric specialization and the role of the corpus callosum in connecting the two halves of the cerebrum.

- 39) After an accident, a patient has difficulty moving the limbs on his right side. Damage was most likely sustained by the _____.
- A) left cerebral cortex
 - B) left globus pallidus
 - C) right cerebral cortex
 - D) cerebellum

Answer: A

Section: 08.02

Topic: Clinical applications of the nervous system; Division, origin, and function of parts of the brain; Neural integration in the CNS

Bloom's: 1. Remember; 3. Apply

Accessibility: Keyboard Navigation

HAPS Outcome: H07.02 Correlate functions with each major area of the adult brain.; H07.06 Discuss the concept of cerebral hemispheric specialization and the role of the corpus callosum in connecting the two halves of the cerebrum.

40) Destruction of the general interpretive area, or Wernicke's area, would be apparent if someone could understand what they are hearing, but cannot form coherent words in reply.

Answer: FALSE

Section: 08.02

Topic: Clinical applications of the nervous system; Division, origin, and function of parts of the brain

Bloom's: 1. Remember; 3. Apply

Accessibility: Keyboard Navigation

HAPS Outcome: H07.04 Identify the five lobes of the cerebral cortex and describe how the motor and sensory functions of the cerebrum are distributed among the lobes.

41) Aphasias are most often associated with damage to _____ and _____ areas.

- A) Wernicke's area; the angular gyrus
- B) fornix; motor speech
- C) motor speech; Wernicke's
- D) the angular gyrus; septal nuclei

Answer: C

Section: 08.02

Topic: Clinical applications of the nervous system; Division, origin, and function of parts of the brain

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H07.04 Identify the five lobes of the cerebral cortex and describe how the motor and sensory functions of the cerebrum are distributed among the lobes.

42) Individuals with aphasia _____.

- A) often have damage to spinal nerves
- B) may not be able to write if the angular gyrus is damaged
- C) often speak slowly if Wernicke's area is damaged
- D) often form nonsensical sentences if the motor speech area is damaged

Answer: B

Section: 08.02

Topic: Clinical applications of the nervous system; Division, origin, and function of parts of the brain

Bloom's: 1. Remember; 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: H07.04 Identify the five lobes of the cerebral cortex and describe how the motor and sensory functions of the cerebrum are distributed among the lobes.; H16.02 Predict the types of problems that would occur in the body if the nervous system could not maintain homeostasis.

43) A "word salad" speaking pattern occurs when _____.

- A) Wernicke's area is damaged
- B) the motor speech area is damaged
- C) the angular gyrus is damaged
- D) spinal nerves are damaged

Answer: A

Section: 08.02

Topic: Clinical applications of the nervous system; Division, origin, and function of parts of the brain

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H07.04 Identify the five lobes of the cerebral cortex and describe how the motor and sensory functions of the cerebrum are distributed among the lobes.; H16.02 Predict the types of problems that would occur in the body if the nervous system could not maintain homeostasis.

44) What structure connects Wernicke's area to the motor speech area?

- A) Corpus striatum
- B) Angular gyrus
- C) Arcuate fasciculus
- D) Corpus callosum

Answer: C

Section: 08.02

Topic: Clinical applications of the nervous system; Division, origin, and function of parts of the brain

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H07.04 Identify the five lobes of the cerebral cortex and describe how the motor and sensory functions of the cerebrum are distributed among the lobes.

45) The connections between the cerebral cortex and the limbic system should allow individuals to consciously moderate their fear responses.

Answer: FALSE

Section: 08.02

Topic: Division, origin, and function of parts of the brain

Bloom's: 1. Remember; 3. Apply

Accessibility: Keyboard Navigation

HAPS Outcome: H07.07 Describe the location and functions of the limbic system.

46) Damage to the Papez circuit prevents communication between the limbic system and _____.

- A) olfactory bulbs
- B) hippocampus
- C) diencephalon
- D) cerebrum

Answer: C

Section: 08.02

Topic: Clinical applications of the nervous system; Division, origin, and function of parts of the brain

Bloom's: 1. Remember; 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: H07.07 Describe the location and functions of the limbic system.

47) Ablation of the amygdaloid body would primarily result in _____.

- A) decreased sex drive
- B) calming of anger
- C) loss of ability to detect olfactory inputs
- D) loss of appetite

Answer: B

Section: 08.02

Topic: Clinical applications of the nervous system; Division, origin, and function of parts of the brain

Bloom's: 1. Remember; 3. Apply

Accessibility: Keyboard Navigation

HAPS Outcome: H07.07 Describe the location and functions of the limbic system.

48) The hypothalamus and the limbic system are involved in _____.

- A) aggression
- B) fear
- C) sex
- D) goal-directed behavior
- E) All of the choices are correct.

Answer: E

Section: 08.02

Topic: Division, origin, and function of parts of the brain

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H07.07 Describe the location and functions of the limbic system.

49) Which of the following is NOT part of the limbic system?

- A) Cingulate gyrus
- B) Angular gyrus
- C) Amygdaloid body
- D) Hippocampus

Answer: B

Section: 08.02

Topic: Division, origin, and function of parts of the brain

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H07.07 Describe the location and functions of the limbic system.

50) The enzyme that catalyzes the formation of a particular damaging amyloid β -peptide, and is implicated in inherited forms of early-onset Alzheimer's disease is _____.

- A) γ -secretase
- B) α -secretase
- C) β -secretase
- D) δ -secretase

Answer: A

Section: 08.02

Topic: Clinical applications of the nervous system

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H07.08 Describe the parts of the brain involved in storage of long term memory and discuss possible mechanisms of memory consolidation.

51) Alzheimer disease is _____.

- A) associated with excessive accumulation of cortical neurons, preventing proper synaptic transmission in the brain
- B) a genetic disease with a clinical course similar to Parkinson disease
- C) multifactorial, involving potential changes in enzyme, protein and lipid activity in the brain.
- D) not associated with or mediated by any lifestyle changes

Answer: C

Section: 08.02

Topic: Clinical applications of the nervous system

Bloom's: 1. Remember; 4. Analyze

Accessibility: Keyboard Navigation

HAPS Outcome: H07.08 Describe the parts of the brain involved in storage of long term memory and discuss possible mechanisms of memory consolidation.

52) A patient who sustains a blow to the side of the head above the cheekbone cannot remember the words to a new song on the radio, no matter how many times he hears it. The head injury likely damaged his _____.

- A) inferior temporal
- B) inferior lateral
- C) prefrontal
- D) medial temporal

Answer: D

Section: 08.02

Topic: Division, origin, and function of parts of the brain

Bloom's: 1. Remember; 4. Analyze

Accessibility: Keyboard Navigation

HAPS Outcome: H07.02 Correlate functions with each major area of the adult brain.; H07.08

Describe the parts of the brain involved in storage of long term memory and discuss possible mechanisms of memory consolidation.

53) The famous patient "H.M." could not remember events that occurred after his memory was damaged after he had brain surgery to treat his epilepsy. He retained his perceptual and motor skills, but lost his memory of new facts and events. Thus, H.M.'s deficit was in _____.

- A) nondeclarative or implicit memory
- B) declarative or implicit memory
- C) declarative or explicit memory
- D) nondeclarative or explicit memory

Answer: C

Section: 08.02

Topic: Clinical applications of the nervous system; Division, origin, and function of parts of the brain

Bloom's: 1. Remember; 3. Apply

Accessibility: Keyboard Navigation

HAPS Outcome: H07.08 Describe the parts of the brain involved in storage of long term memory and discuss possible mechanisms of memory consolidation.

54) The conversion of short-term memory to long-term memory would be inhibited by ablation of the _____.

- A) pons
- B) cerebral nuclei
- C) hippocampus
- D) occipital lobe

Answer: C

Section: 08.02

Topic: Clinical applications of the nervous system; Division, origin, and function of parts of the brain

Bloom's: 1. Remember; 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: H07.08 Describe the parts of the brain involved in storage of long term memory and discuss possible mechanisms of memory consolidation.

55) The conversion of short-term memory to long-term memory is called memory _____.

- A) ablation
- B) consolidation
- C) recognition
- D) translation

Answer: B

Section: 08.02

Topic: Integrative functions of parts of the brain

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H07.08 Describe the parts of the brain involved in storage of long term memory and discuss possible mechanisms of memory consolidation.

56) Riding a bicycle with ease after years of not riding is an example of _____ memory.

- A) episodic
- B) semantic
- C) procedural
- D) working

Answer: C

Section: 08.02

Topic: Integrative functions of parts of the brain

Bloom's: 1. Remember; 3. Apply

Accessibility: Keyboard Navigation

HAPS Outcome: H07.08 Describe the parts of the brain involved in storage of long term memory and discuss possible mechanisms of memory consolidation.

57) What specific area of the brain has shown to be involved in complex problem-solving?

- A) Hippocampus
- B) Prefrontal cortex
- C) Amygdaloid body
- D) Frontal lobe

Answer: B

Section: 08.02

Topic: Division, origin, and function of parts of the brain

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H07.08 Describe the parts of the brain involved in storage of long term memory and discuss possible mechanisms of memory consolidation.

58) What type of memory is involved in learning the material in *Human Physiology* about memory?

- A) Semantic
- B) Implicit
- C) Episodic
- D) Procedural

Answer: A

Section: 08.02

Topic: Neural integration in the CNS

Bloom's: 1. Remember; 3. Apply

Accessibility: Keyboard Navigation

HAPS Outcome: H07.08 Describe the parts of the brain involved in storage of long term memory and discuss possible mechanisms of memory consolidation.

59) Being able to recognize the face of a schoolmate at your 30-year reunion would be a function of the _____.

- A) inferior temporal lobes
- B) occipital lobe
- C) medial temporal lobes
- D) anterior frontal lobes

Answer: A

Section: 08.02

Topic: Division, origin, and function of parts of the brain

Bloom's: 1. Remember; 3. Apply

Accessibility: Keyboard Navigation

HAPS Outcome: H07.08 Describe the parts of the brain involved in storage of long term memory and discuss possible mechanisms of memory consolidation.

60) An example of working memory would be _____.

- A) recognizing a threatening picture
- B) remembering the last hockey game you attended
- C) looking up an address and addressing an envelope
- D) playing a song on the piano you learned as a child

Answer: C

Section: 08.02

Topic: Integrative functions of the nervous system

Bloom's: 1. Remember; 3. Apply

Accessibility: Keyboard Navigation

HAPS Outcome: H07.08 Describe the parts of the brain involved in storage of long term memory and discuss possible mechanisms of memory consolidation.

61) A circular path of neurons synapsing with one after another is called a _____ circuit.

- A) recurrent
- B) dendritic
- C) synaptic
- D) parallel

Answer: A

Section: 08.02

Topic: Neural integration in the CNS

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H07.08 Describe the parts of the brain involved in storage of long term memory and discuss possible mechanisms of memory consolidation.

62) What ion is involved in stimulating genetic transcription needed for learning and memory?

- A) Na^+
- B) K^+
- C) Ca^{2+}
- D) NO

Answer: C

Section: 08.02

Topic: Integrative functions of the brain

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H07.08 Describe the parts of the brain involved in storage of long term memory and discuss possible mechanisms of memory consolidation.

63) In long-term potentiation dealing with memory, what regulatory protein do calcium ions bind to?

- A) Kinase
- B) Calmodulin
- C) CREB
- D) CaMKII

Answer: B

Section: 08.02

Topic: Integrative functions of the brain

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H07.08 Describe the parts of the brain involved in storage of long term memory and discuss possible mechanisms of memory consolidation.

64) What is the function of CREB in long-term memory?

- A) Opens Ca^{2+} channels
- B) Addition of AMPA receptors
- C) Draws more glutamate into the neuron
- D) Activates genes to make proteins such as dendritic spines

Answer: D

Section: 08.02

Topic: Integrative functions of the brain

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H07.08 Describe the parts of the brain involved in storage of long term memory and discuss possible mechanisms of memory consolidation.

65) Neurogenesis in the hippocampus may be involved in learning and memory.

Answer: TRUE

Section: 08.02

Topic: Division, origin, and function of parts of the brain; Neural integration in the CNS

Bloom's: 1. Remember; 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: H07.08 Describe the parts of the brain involved in storage of long term memory and discuss possible mechanisms of memory consolidation.

66) The _____ is involved in the improvement of memory when the memory has an emotional content.

- A) caudate nucleus
- B) substantia nigra
- C) amygdaloid body
- D) fornix

Answer: C

Section: 08.02

Topic: Division, origin, and function of parts of the brain

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H07.08 Describe the parts of the brain involved in storage of long term memory and discuss possible mechanisms of memory consolidation.

67) Damage to the _____ will cause a lack of motivation and sexual desire as well as deficient cognitive functions.

- A) lateral prefrontal area
- B) hypothalamus
- C) amygdaloid body
- D) medial temporal lobe

Answer: A

Section: 08.02

Topic: Clinical applications of the nervous system; Division, origin, and function of parts of the brain

Bloom's: 1. Remember; 4. Analyze

Accessibility: Keyboard Navigation

HAPS Outcome: H07.04 Identify the five lobes of the cerebral cortex and describe how the motor and sensory functions of the cerebrum are distributed among the lobes.; H16.02 Predict the types of problems that would occur in the body if the nervous system could not maintain homeostasis.

68) The limbic system, especially the _____ and _____, are rich in "stress hormone" receptors.

- A) caudate nucleus; hippocampus
- B) hippocampus; amygdaloid body
- C) cingulated gyrus; amygdaloid body
- D) septal nuclei; hippocampus

Answer: B

Section: 08.02

Topic: Division, origin, and function of parts of the brain

Bloom's: 1. Remember; 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: H07.07 Describe the location and functions of the limbic system.

69) Damage to the orbitofrontal area of the prefrontal cortex causes _____.

- A) memory deficiencies
- B) cognitive deficiencies
- C) severe impulsive/sociopathic behavior
- D) inhibited fear response

Answer: C

Section: 08.02

Topic: Clinical applications of the nervous system; Division, origin, and function of parts of the brain

Bloom's: 1. Remember; 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: H07.04 Identify the five lobes of the cerebral cortex and describe how the motor and sensory functions of the cerebrum are distributed among the lobes.; H16.02 Predict the types of problems that would occur in the body if the nervous system could not maintain homeostasis.

70) What substance can act as a retrograde messenger to increase LPT by increasing the release of glutamate from presynaptic terminals?

- A) Mg^{2+}
- B) Ca^{2+}
- C) NO
- D) ACh

Answer: C

Section: 08.02

Topic: Neural integration in the CNS

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H07.08 Describe the parts of the brain involved in storage of long term memory and discuss possible mechanisms of memory consolidation.

71) What substance can act as a retrograde messenger to suppress release of GABA to contribute to LTP?

- A) Acetylcholine
- B) Endocannabinoid
- C) Carbon monoxide
- D) Norepinephrine

Answer: B

Section: 08.02

Topic: Neural integration in the CNS

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H07.08 Describe the parts of the brain involved in storage of long term memory and discuss possible mechanisms of memory consolidation.

72) Damaging the diencephalon would inhibit detection of sensory stimuli.

Answer: TRUE

Section: 08.03

Topic: Clinical applications of the nervous system; Division, origin, and function of parts of the brain

Bloom's: 1. Remember; 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: H07.02 Correlate functions with each major area of the adult brain.; H16.02 Predict the types of problems that would occur in the body if the nervous system could not maintain homeostasis.

73) The majority of sensory information is relayed to the cerebrum by the _____.

- A) pons
- B) thalamus
- C) hypothalamus
- D) medulla oblongata

Answer: B

Section: 08.03

Topic: Division, origin, and function of parts of the brain; Neural integration in the CNS

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H07.02 Correlate functions with each major area of the adult brain.

- 74) The _____ is the dorsal diencephalon, containing the choroid plexus and the pineal gland.
- A) epithalamus
 - B) hypothalamus
 - C) thalamus
 - D) third ventricle

Answer: A

Section: 08.03

Topic: Gross anatomy of the components of the brain

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H07.01 List the five developmental regions of the brain and identify the major areas of the adult brain that arise from each region.

- 75) Except for the sense of _____, all sensory information is relayed through the thalamus.
- A) taste
 - B) vision
 - C) balance
 - D) smell

Answer: D

Section: 08.03

Topic: Division, origin, and function of parts of the brain

Bloom's: 1. Remember; 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: H07.02 Correlate functions with each major area of the adult brain.

- 76) Interpretation of auditory inputs would be most affected by _____.
- A) ablation of the intralaminar nuclei of the thalamus
 - B) ablation of the hypothalamus
 - C) ablation to the medial geniculate nuclei of the thalamus
 - D) ablation of the lateral geniculate nuclei of the thalamus

Answer: C

Section: 08.03

Topic: Clinical applications of the nervous system; Division, origin, and function of parts of the brain

Bloom's: 1. Remember; 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: H07.02 Correlate functions with each major area of the adult brain.

77) The hypothalamus does NOT _____.

- A) control hunger and thirst
- B) control reactions to odors
- C) control body temperature
- D) controls the autonomic nervous system

Answer: B

Section: 08.03

Topic: Division, origin, and function of parts of the brain

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H07.02 Correlate functions with each major area of the adult brain.

78) Based on experimental evidence, the _____ hypothalamus acts as the body's thermostat.

- A) preoptic-anterior
- B) lateral
- C) medial
- D) supraoptic

Answer: A

Section: 08.03

Topic: Division, origin, and function of parts of the brain

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H07.02 Correlate functions with each major area of the adult brain.

79) Releasing and inhibiting hormones are produced in the _____.

- A) hypothalamus
- B) anterior pituitary gland
- C) pineal gland
- D) posterior pituitary gland

Answer: A

Section: 08.03

Topic: Division, origin, and function of parts of the brain; Hormones from the hypothalamus and pituitary glands and their functions

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H07.02 Correlate functions with each major area of the adult brain.

- 80) The suprachiasmatic nuclei _____.
- A) are located in the anterior hypothalamus
 - B) control melatonin secretion from the pineal gland
 - C) contain "clock cells" that have patterns which repeat about every twenty-four hours
 - D) All of the choices are correct.

Answer: D

Section: 08.03

Topic: Division, origin, and function of parts of the brain

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H07.02 Correlate functions with each major area of the adult brain.

- 81) The liver, heart, and kidneys all have genes involved in circadian rhythm, indicating regular daily functions in metabolism.

Answer: TRUE

Section: 08.03

Topic: Integrative functions of the brain

Bloom's: 1. Remember; 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: H07.02 Correlate functions with each major area of the adult brain.

- 82) Destruction of the superior colliculi would impact an individual's hearing.

Answer: FALSE

Section: 08.04

Topic: Clinical applications of the nervous system; Division, origin, and function of parts of the brain

Bloom's: 1. Remember; 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: H07.02 Correlate functions with each major area of the adult brain.; H16.02 Predict the types of problems that would occur in the body if the nervous system could not maintain homeostasis.

- 83) Ablation of the _____ in the midbrain would impair the ability to respond to sounds.
- A) substantia nigra
 - B) medial colliculi
 - C) red nucleus
 - D) inferior colliculi

Answer: D

Section: 08.04

Topic: Clinical applications of the nervous system; Division, origin, and function of parts of the brain

Bloom's: 1. Remember; 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: H07.02 Correlate functions with each major area of the adult brain.; H16.02 Predict the types of problems that would occur in the body if the nervous system could not maintain homeostasis.

- 84) Visual reflexes would be impaired by damage to the _____.
- A) superior colliculi
 - B) inferior colliculi
 - C) red nucleus
 - D) medial geniculate nuclei

Answer: A

Section: 08.04

Topic: Clinical applications of the nervous system; Division, origin, and function of parts of the brain

Bloom's: 1. Remember; 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: H07.08 Describe the parts of the brain involved in storage of long term memory and discuss possible mechanisms of memory consolidation.

- 85) What part of the mesolimbic system found in the midbrain is involved with behavioral reward?
- A) Corpora quadrigemina
 - B) Ventral tegmental area
 - C) Substantia nigra
 - D) Nigrostriatal pathway

Answer: B

Section: 08.04

Topic: Division, origin, and function of parts of the brain

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H07.08 Describe the parts of the brain involved in storage of long term memory and discuss possible mechanisms of memory consolidation.

86) The pons and cerebellum comprise the metencephalon.

Answer: TRUE

Section: 08.04

Topic: Gross anatomy of the components of the brain

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H07.08 Describe the parts of the brain involved in storage of long term memory and discuss possible mechanisms of memory consolidation.

87) If the pons were damaged, which deficit in cranial nerve function may be present?

A) Loss of vision

B) Difficulty swallowing

C) Inability to chew

D) Inability to protrude of tongue

Answer: C

Section: 08.04

Topic: Gross anatomy of the components of the brain; Structure and function of cranial nerves

Bloom's: 1. Remember; 3. Apply

Accessibility: Keyboard Navigation

HAPS Outcome: H07.08 Describe the parts of the brain involved in storage of long term memory and discuss possible mechanisms of memory consolidation.

88) The midbrain, thalamus, and pons are all considered part of the brainstem.

Answer: FALSE

Section: 08.04

Topic: Gross anatomy of the components of the brain

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H07.08 Describe the parts of the brain involved in storage of long term memory and discuss possible mechanisms of memory consolidation.

89) Which brain structure contains two respiratory control centers?

- A) Cerebellum
- B) Epithalamus
- C) Pons
- D) Midbrain

Answer: C

Section: 08.04

Topic: Gross anatomy of the components of the brain

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H07.08 Describe the parts of the brain involved in storage of long term memory and discuss possible mechanisms of memory consolidation.

90) Which of the following is NOT required to coordinate movement?

- A) Cerebellum
- B) Hypothalamus
- C) Basal nuclei
- D) Motor cortex

Answer: B

Section: 08.04

Topic: Division, origin, and function of parts of the brain; Integrative functions of the brain

Bloom's: 1. Remember; 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: H07.08 Describe the parts of the brain involved in storage of long term memory and discuss possible mechanisms of memory consolidation.

91) The inability to reach out and touch an object with control and accuracy may result from damage to the _____.

- A) pons
- B) cerebrum
- C) cerebellum
- D) midbrain

Answer: C

Section: 08.04

Topic: Clinical applications of the nervous system; Division, origin, and function of parts of the brain

Bloom's: 1. Remember; 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: H07.08 Describe the parts of the brain involved in storage of long term memory and discuss possible mechanisms of memory consolidation.

92) Ataxia is often associated with damage to the _____.

- A) motor cortex
- B) cerebellum
- C) pyramidal tracts
- D) occipital lobe

Answer: B

Section: 08.04

Topic: Clinical applications of the nervous system; Division, origin, and function of parts of the brain

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H07.08 Describe the parts of the brain involved in storage of long term memory and discuss possible mechanisms of memory consolidation.

93) What type of cerebellar cells provide communication to other brain areas?

- A) Purkinje cells
- B) Reticular cells
- C) Supraoptic cells
- D) Pyramidal cells

Answer: A

Section: 08.04

Topic: Division, origin, and function of parts of the brain; Neural integration in the CNS

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H07.08 Describe the parts of the brain involved in storage of long term memory and discuss possible mechanisms of memory consolidation.

94) The medulla oblongata _____.

- A) is continuous with the midbrain
- B) contains the glossopharyngeal nuclei
- C) acts only as a relay center
- D) contains the nuclei of three cranial nerves

Answer: B

Section: 08.04

Topic: Division, origin, and function of parts of the brain

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H07.08 Describe the parts of the brain involved in storage of long term memory and discuss possible mechanisms of memory consolidation.

95) Which of the following is NOT a vital function of the medulla oblongata?

- A) Vasomotor control
- B) Cardiac control
- C) Thirst control
- D) Respiratory control

Answer: C

Section: 08.04

Topic: Division, origin, and function of parts of the brain

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H07.08 Describe the parts of the brain involved in storage of long term memory and discuss possible mechanisms of memory consolidation.

96) The right side of the brain controls motor activity on the left side of the body because nerve tracts decussate in the _____.

- A) pons
- B) midbrain
- C) thalamus
- D) medulla oblongata

Answer: D

Section: 08.04

Topic: Physiology of sensory and motor pathways in the brain and spinal cord

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H07.08 Describe the parts of the brain involved in storage of long term memory and discuss possible mechanisms of memory consolidation.

97) Which of the following RAS neurotransmitters stimulates the cerebral cortex for wakefulness?

- A) Dopamine
- B) GABA
- C) Norepinephrine
- D) Both dopamine and norepinephrine are correct.

Answer: D

Section: 08.04

Topic: Division, origin, and function of parts of the brain

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H07.09 Describe the location and functions of the reticular activating system.

98) What condition is caused by a sudden failure of the RAS?

- A) Narcolepsy
- B) Parkinson's disease
- C) Alzheimer's disease
- D) Insomnia

Answer: A

Section: 08.04

Topic: Clinical applications of the nervous system; Division, origin, and function of parts of the brain

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H07.09 Describe the location and functions of the reticular activating system.

99) Neurons of the ventrolateral preoptic nucleus (VLPO) of the hypothalamus release _____ that promotes sleep.

- A) GABA
- B) Acetylcholine
- C) Dopamine
- D) Histamine

Answer: A

Section: 08.04

Topic: Division, origin, and function of parts of the brain

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H07.09 Describe the location and functions of the reticular activating system.

100) The spinal cord begins at the foramen magnum and extends to the base of the fifth lumbar vertebrae.

Answer: FALSE

Section: 08.05

Topic: Anatomy of the spinal cord and spinal nerves

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H12.02 Describe the locations and functions of the upper and lower motor neurons in a motor pathway.

101) In the spinal cord, the gray matter is arranged into _____ and the white matter is arranged into _____.

- A) columns; horns
- B) funiculi; tracts
- C) horns; funiculi
- D) tracts; funiculi

Answer: C

Section: 08.05

Topic: Anatomy of the spinal cord and spinal nerves

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H12.02 Describe the locations and functions of the upper and lower motor neurons in a motor pathway.

102) The spinocerebellar tract would carry information from sensory receptors to the cerebral cortex.

Answer: FALSE

Section: 08.05

Topic: Physiology of sensory and motor pathways in the brain and spinal cord

Bloom's: 1. Remember; 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: H12.02 Describe the locations and functions of the upper and lower motor neurons in a motor pathway.

103) Sensory impulses for fine touch, precise pressures, and body movement are carried by the _____ tracts.

- A) anterior spinothalamic
- B) posterior spinocerebellar
- C) lateral spinothalamic
- D) fasciculi cuneatus and gracilis

Answer: D

Section: 08.05

Topic: Physiology of sensory and motor pathways in the brain and spinal cord

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H12.02 Describe the locations and functions of the upper and lower motor neurons in a motor pathway.

104) The reticulospinal tracts are the major descending pathways of the pyramidal system.

Answer: FALSE

Section: 08.05

Topic: Physiology of sensory and motor pathways in the brain and spinal cord

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H12.02 Describe the locations and functions of the upper and lower motor neurons in a motor pathway.

105) Descending tracts carry motor impulses from the cerebral cortex to the spinal cord.

Answer: TRUE

Section: 08.05

Topic: Physiology of sensory and motor pathways in the brain and spinal cord

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H12.02 Describe the locations and functions of the upper and lower motor neurons in a motor pathway.

106) A positive Babinski sign in adults indicates damage to the pyramidal motor tracts.

Answer: TRUE

Section: 08.05

Topic: Clinical applications of the nervous system; Physiology of sensory and motor pathways in the brain and spinal cord

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H11.07 Propose how specific reflexes would be used in clinical assessment of nervous system function.

107) Nerve fibers of the _____ tract decussate in the spinal cord and are involved in regulating fine motor movements.

A) lateral spinothalamic

B) anterior spinothalamic

C) lateral corticospinal

D) anterior corticospinal

Answer: D

Section: 08.05

Topic: Physiology of sensory and motor pathways in the brain and spinal cord

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H12.03 Explain how decussation occurs in sensory and motor pathways and predict how decussation impacts the correlation of brain damage and symptoms in stroke patients.

108) A spinal cord injury occurs to the posterior spinocerebellar tract on the right side. What deficits would be expected?

- A) Decreased sensory impulses from the cerebellum on the left side
- B) Decreased sensory impulses to the both sides of the cerebellum
- C) Decreased sensory impulses to the cerebellum on the right side
- D) Decreased sensory impulses from the cerebellum on the right side

Answer: C

Section: 08.05

Topic: Physiology of sensory and motor pathways in the brain and spinal cord

Bloom's: 1. Remember; 4. Analyze

Accessibility: Keyboard Navigation

HAPS Outcome: H12.03 Explain how decussation occurs in sensory and motor pathways and predict how decussation impacts the correlation of brain damage and symptoms in stroke patients.

109) Most corticospinal tracts decussate in the _____.

- A) midbrain
- B) basal nuclei
- C) medulla oblongata
- D) spinal cord

Answer: C

Section: 08.05

Topic: Physiology of sensory and motor pathways in the brain and spinal cord

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H12.03 Explain how decussation occurs in sensory and motor pathways and predict how decussation impacts the correlation of brain damage and symptoms in stroke patients.

110) The extrapyramidal tracts _____.

- A) arise in the cerebral cortex
- B) always cross in the spinal cord
- C) originate in the brainstem
- D) are responsible for reflex generation of a Babinski sign

Answer: C

Section: 08.05

Topic: Physiology of sensory and motor pathways in the brain and spinal cord

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H12.03 Explain how decussation occurs in sensory and motor pathways and predict how decussation impacts the correlation of brain damage and symptoms in stroke patients.

111) The extrapyramidal tracts begin at the motor cortex of the frontal lobe and synapse in the medulla before descending the spinal cord.

Answer: FALSE

Section: 08.05

Topic: Physiology of sensory and motor pathways in the brain and spinal cord

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H12.02 Describe the locations and functions of the upper and lower motor neurons in a motor pathway.

112) Which tract is NOT part of the extrapyramidal motor tracts?

A) Vestibulospinal

B) Corticospinal

C) Rubrospinal

D) Reticulospinal

Answer: B

Section: 08.05

Topic: Physiology of sensory and motor pathways in the brain and spinal cord

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H12.02 Describe the locations and functions of the upper and lower motor neurons in a motor pathway.

113) Damage to cranial nerve IX would impair swallowing.

Answer: TRUE

Section: 08.06

Topic: Clinical applications of the nervous system; Structure and function of cranial nerves

Bloom's: 1. Remember; 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: H10.04 Identify the dorsal root ganglia, dorsal and ventral roots, and spinal nerves.

114) The inability to chew would be associated with damage to the ophthalmic division of the trigeminal nerve.

Answer: FALSE

Section: 08.06

Topic: Clinical applications of the nervous system; Structure and function of cranial nerves

Bloom's: 1. Remember; 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: H10.04 Identify the dorsal root ganglia, dorsal and ventral roots, and spinal nerves.

115) A cranial nerve with only sensory fibers is the _____.

- A) hypoglossal nerve
- B) optic nerve
- C) vagus nerve
- D) trigeminal nerve

Answer: B

Section: 08.06

Topic: Structure and function of cranial nerves

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H10.04 Identify the dorsal root ganglia, dorsal and ventral roots, and spinal nerves.

116) Eye movements would be compromised by damage to the _____.

- A) trochlear nerve
- B) vestibulocochlear nerve
- C) vagus nerve
- D) accessory nerve

Answer: A

Section: 08.06

Topic: Structure and function of cranial nerves

Bloom's: 1. Remember; 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: H10.04 Identify the dorsal root ganglia, dorsal and ventral roots, and spinal nerves.

117) Damage to which cranial nerve would be associated with both sensory and motor deficits?

- A) VIII
- B) II
- C) I
- D) VII

Answer: D

Section: 08.06

Topic: Structure and function of cranial nerves

Bloom's: 1. Remember; 3. Apply

Accessibility: Keyboard Navigation

HAPS Outcome: H10.04 Identify the dorsal root ganglia, dorsal and ventral roots, and spinal nerves.

118) Which cranial nerve is vital for the functioning of the visceral organs?

- A) Abducens
- B) Glossopharyngeal
- C) Hypoglossal
- D) Vagus

Answer: D

Section: 08.06

Topic: Structure and function of cranial nerves

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H10.04 Identify the dorsal root ganglia, dorsal and ventral roots, and spinal nerves.

119) Which cranial nerve is NOT involved with eye movements?

- A) Optic
- B) Oculomotor
- C) Abducens
- D) Trochlear

Answer: A

Section: 08.06

Topic: Structure and function of cranial nerves

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H10.04 Identify the dorsal root ganglia, dorsal and ventral roots, and spinal nerves.

120) The facial nerve is the major sensory nerve from the face.

Answer: FALSE

Section: 08.06

Topic: Structure and function of cranial nerves

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H10.04 Identify the dorsal root ganglia, dorsal and ventral roots, and spinal nerves.

121) Which cranial nerve allows one to smile and secrete tears?

- A) V
- B) IX
- C) XII
- D) VII

Answer: D

Section: 08.06

Topic: Structure and function of cranial nerves

Bloom's: 1. Remember; 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: H10.04 Identify the dorsal root ganglia, dorsal and ventral roots, and spinal nerves.

122) Cell bodies of motor neurons are found within the dorsal root ganglia.

Answer: FALSE

Section: 08.06

Topic: Anatomy of the spinal cord and spinal nerves

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H10.04 Identify the dorsal root ganglia, dorsal and ventral roots, and spinal nerves.

123) There are _____ pairs of cranial nerves and _____ pairs of spinal nerves.

- A) 15; 31
- B) 31; 12
- C) 12; 31
- D) 12; 25

Answer: C

Section: 08.06

Topic: Anatomy of the spinal cord and spinal nerves; Structure and function of cranial nerves

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H10.04 Identify the dorsal root ganglia, dorsal and ventral roots, and spinal nerves.

124) If the dorsal root of a spinal nerve were to be cut, the individual would _____.
A) have no motor responses for that nerve
B) have no sensory perception from that nerve
C) have no reflexes involving that nerve
D) Both have no sensory perception from that nerve and have no reflexes involving that nerve are correct.

Answer: D

Section: 08.06

Topic: Anatomy of the spinal cord and spinal nerves; Physiology of sensory and motor pathways in the brain and spinal cord

Bloom's: 1. Remember; 4. Analyze

Accessibility: Keyboard Navigation

HAPS Outcome: H10.04 Identify the dorsal root ganglia, dorsal and ventral roots, and spinal nerves.

125) All cranial and spinal nerves are mixed.

Answer: FALSE

Section: 08.06

Topic: Anatomy of the spinal cord and spinal nerves

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H10.04 Identify the dorsal root ganglia, dorsal and ventral roots, and spinal nerves.

126) Which of the following spinal nerve groups is incorrect?

- A) Cervical—7
- B) Thoracic—12
- C) Lumbar—5
- D) Sacral—5

Answer: A

Section: 08.06

Topic: Anatomy of the spinal cord and spinal nerves

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H10.04 Identify the dorsal root ganglia, dorsal and ventral roots, and spinal nerves.

- 127) Reflex arcs _____.
- A) require the actions of the brain
 - B) do not utilize somatic motor nerves
 - C) generally rely on the actions of the hypothalamus
 - D) may have a single synapse

Answer: D

Section: 08.06

Topic: Reflexes and their roles in nervous system function

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H10.04 Identify the dorsal root ganglia, dorsal and ventral roots, and spinal nerves.

- 128) Nerves that serve the arm come from the _____ plexus.
- A) cervical
 - B) brachial
 - C) lumbar
 - D) sacral

Answer: B

Section: 08.06

Topic: Anatomy of the spinal cord and spinal nerves

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H10.04 Identify the dorsal root ganglia, dorsal and ventral roots, and spinal nerves.

- 129) Nerves that innervate the muscles and skin of the leg arise from the _____.
- A) sacral plexus
 - B) brachial plexus
 - C) lumbar plexus
 - D) Both the sacral and lumbar plexuses are correct.

Answer: D

Section: 08.06

Topic: Anatomy of the spinal cord and spinal nerves

Bloom's: 1. Remember; 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: H10.04 Identify the dorsal root ganglia, dorsal and ventral roots, and spinal nerves.

130) What is the first structure of a reflex arc?

- A) Effector (muscles or glands)
- B) Receptor
- C) Sensory neuron
- D) Motor neuron

Answer: B

Section: 08.06

Topic: Physiology of sensory and motor pathways in the brain and spinal cord; Reflexes and their roles in nervous system function

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H10.04 Identify the dorsal root ganglia, dorsal and ventral roots, and spinal nerves.

131) A reflex arc requires intervention from the cerebral cortex for a motor response to occur.

Answer: FALSE

Section: 08.06

Topic: Reflexes and their roles in nervous system function

Bloom's: 1. Remember; 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: H10.04 Identify the dorsal root ganglia, dorsal and ventral roots, and spinal nerves.

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1) As autonomic motor neurons leave the spinal cord, they synapse with another neuron prior to synapsing with the target organ.

Answer: TRUE

Section: 09.01

Topic: Anatomy of the spinal cord and spinal nerves; Comparisons of somatic and autonomic nervous systems

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H13.02 Contrast the anatomy of the parasympathetic and sympathetic systems, including central nervous system outflow locations, ganglia locations, pre- and post- ganglionic neuron relative lengths, and ganglionic and effector neurotransmitters.

2) There are no sensory neurons associated with the autonomic nervous system.

Answer: FALSE

Section: 09.01

Topic: Comparisons of somatic and autonomic nervous systems

Bloom's: 1. Remember; 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: H14.02 Contrast the cellular anatomy of the somatic and autonomic motor pathways.

3) Important visceral sensory information like blood pressure, plasma pH, and oxygen concentration are carried to the brain through cranial nerves XI and XII.

Answer: FALSE

Section: 09.01

Topic: Comparisons of somatic and autonomic nervous systems; Structure and function of cranial nerves

Bloom's: 1. Remember; 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: H09.02 Describe the specific functions of each of the cranial nerves and classify each as sensory, motor or mixed.; H14.02 Contrast the cellular anatomy of the somatic and autonomic motor pathways.

4) Autonomic motor nerves do NOT innervate _____.

- A) smooth muscle
- B) skeletal muscle
- C) cardiac muscle
- D) glands

Answer: B

Section: 09.01

Topic: Comparisons of somatic and autonomic nervous systems

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H14.01 Distinguish between the effectors of the somatic and autonomic nervous systems.

5) Somatic motor neurons have a direct connection between the CNS and their effector organs, while _____ neurons must synapse on with a peripheral neuron before reaching their effectors.

- A) somatic sensory
- B) autonomic sensory
- C) autonomic motor
- D) Both somatic and autonomic are correct.

Answer: C

Section: 09.01

Topic: Anatomy of the spinal cord and spinal nerves; Comparisons of somatic and autonomic nervous systems

Bloom's: 1. Remember; 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: H14.02 Contrast the cellular anatomy of the somatic and autonomic motor pathways.

6) Somatic motor reflexes involve _____.

- A) the autonomic nervous system
- B) contraction of smooth muscle
- C) contraction of skeletal muscle
- D) the autonomic ganglia

Answer: C

Section: 09.01

Topic: Comparisons of somatic and autonomic nervous systems; Reflexes and their roles in nervous system function

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H11.02 Describe reflex responses in terms of the major structural and functional components of a reflex arc.; H14.01 Distinguish between the effectors of the somatic and autonomic nervous systems.

- 7) Damage to the autonomic motor nerves would probably result in _____.
- A) no change in skeletal muscle tone
 - B) muscle atrophy
 - C) flaccid paralysis
 - D) increased skeletal muscle contraction

Answer: A

Section: 09.01

Topic: Clinical applications of the nervous system; Comparisons of somatic and autonomic nervous systems

Bloom's: 1. Remember; 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: H14.01 Distinguish between the effectors of the somatic and autonomic nervous systems.

- 8) Compared to somatic motor neurons, autonomic motor neurons _____.
- A) would be unaffected by a spinal cord injury
 - B) do not innervate muscle tissue
 - C) utilize acetylcholine to affect target organs
 - D) control actions in multiple organ systems

Answer: D

Section: 09.01

Topic: Comparisons of somatic and autonomic nervous systems

Bloom's: 1. Remember; 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: H14.02 Contrast the cellular anatomy of the somatic and autonomic motor pathways.; K07.05 Compare and contrast the role of nerves in the depolarization of cardiac pacemaker cells, ventricular contractile cells, and skeletal muscle cells.

- 9) Damage to an autonomic neuron makes the effector more sensitive to stimulation.

Answer: TRUE

Section: 09.01

Topic: Clinical applications of the nervous system; Functions of the autonomic nervous system

Bloom's: 1. Remember; 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: H13.09 Describe major parasympathetic and/or sympathetic physiological effects on target organs.; H16.02 Predict the types of problems that would occur in the body if the nervous system could not maintain homeostasis.

10) Many autonomic visceral effector organs can function without nervous innervation.

Answer: TRUE

Section: 09.01

Topic: Functions of the autonomic nervous system

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H13.03 Describe examples of specific effectors dually innervated by the two branches of the autonomic nervous system and explain how each branch influences function in a given effector.

11) Cell bodies of preganglionic sympathetic neurons can be located in the _____.

A) midbrain

B) peripheral ganglia

C) thoracic and sacral regions of the spinal cord

D) thoracic and lumbar regions of the spinal cord

Answer: D

Section: 09.01

Topic: Comparisons of somatic and autonomic nervous systems

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H13.02 Contrast the anatomy of the parasympathetic and sympathetic systems, including central nervous system outflow locations, ganglia locations, pre- and post- ganglionic neuron relative lengths, and ganglionic and effector neurotransmitters.

12) Postganglionic sympathetic neurons arise from the thoracic and lumbar regions of the spinal cord.

Answer: FALSE

Section: 09.02

Topic: Comparisons of somatic and autonomic nervous systems

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H13.02 Contrast the anatomy of the parasympathetic and sympathetic systems, including central nervous system outflow locations, ganglia locations, pre- and post- ganglionic neuron relative lengths, and ganglionic and effector neurotransmitters.

13) How can you distinguish the sympathetic from the parasympathetic division of the autonomic nervous system?

- A) Origin of the preganglionic neurons
- B) Neurotransmitters released by the preganglionic neurons
- C) Presence of peripheral ganglia
- D) Sympathetic can be both excitatory and inhibitory

Answer: A

Section: 09.01

Topic: Neurotransmitters and their roles in synaptic transmission

Bloom's: 1. Remember; 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: H14.03 Name the neurotransmitters released at synapses with effector organs in the somatic and autonomic motor pathways and classify each effector response as excitatory or inhibitory.

14) Damage to the gray rami communicantes would interfere with the transmission of impulses from the sympathetic postganglionic neurons and their effector organs.

Answer: FALSE

Section: 09.02

Topic: Anatomy of the parasympathetic division of the ANS; Clinical applications of the nervous system

Bloom's: 1. Remember; 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: H13.02 Contrast the anatomy of the parasympathetic and sympathetic systems, including central nervous system outflow locations, ganglia locations, pre- and post- ganglionic neuron relative lengths, and ganglionic and effector neurotransmitters.; H16.02 Predict the types of problems that would occur in the body if the nervous system could not maintain homeostasis.

15) The slowest rate of conduction would be measured in _____ neurons.

- A) preganglionic autonomic sympathetic
- B) postganglionic autonomic sympathetic
- C) preganglionic parasympathetic
- D) somatic

Answer: B

Section: 09.02

Topic: Anatomy of the sympathetic division of the ANS; Physiology of nerve impulse transmission

Bloom's: 1. Remember; 3. Apply

Accessibility: Keyboard Navigation

HAPS Outcome: H13.02 Contrast the anatomy of the parasympathetic and sympathetic systems, including central nervous system outflow locations, ganglia locations, pre- and post- ganglionic neuron relative lengths, and ganglionic and effector neurotransmitters.

16) The paravertebral and collateral ganglia are associated with the _____ division of the autonomic nervous system.

- A) sympathetic
- B) parasympathetic
- C) somatic
- D) sensory

Answer: A

Section: 09.02

Topic: Anatomy of the sympathetic division of the ANS

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H13.02 Contrast the anatomy of the parasympathetic and sympathetic systems, including central nervous system outflow locations, ganglia locations, pre- and post- ganglionic neuron relative lengths, and ganglionic and effector neurotransmitters.

17) The _____ are branches made from the preganglionic sympathetic axons that travel from the spinal nerves to sympathetic ganglia chain.

- A) dorsal rami
- B) ventral rami
- C) white rami communicantes
- D) gray rami communicantes

Answer: C

Section: 09.02

Topic: Anatomy of the sympathetic division of the ANS

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H13.02 Contrast the anatomy of the parasympathetic and sympathetic systems, including central nervous system outflow locations, ganglia locations, pre- and post- ganglionic neuron relative lengths, and ganglionic and effector neurotransmitters.

18) A patient in a car accident fractured a thoracic vertebra, and sustained damage to the nerve rootlets leaving the intravertebral foramen at the same level. The autonomic structure(s) likely to be damaged by this injury are the _____.

- A) white rami communicantes
- B) preganglionic parasympathetic cell bodies
- C) celiac ganglion
- D) splanchnic nerves

Answer: A

Section: 09.02

Topic: Anatomy of the sympathetic division of the ANS

Bloom's: 1. Remember; 4. Analyze

Accessibility: Keyboard Navigation

HAPS Outcome: H13.02 Contrast the anatomy of the parasympathetic and sympathetic systems, including central nervous system outflow locations, ganglia locations, pre- and post- ganglionic neuron relative lengths, and ganglionic and effector neurotransmitters.

19) Mass activation is an important ability of the sympathetic nervous system because _____.

- A) it allows for simultaneous increases and decreases in the activity of postganglionic sympathetic axons to maintain homeostasis.
- B) it allows coordination of the entire sympathetic division during "fight-or-flight" response.
- C) it allows the parasympathetic nervous system to decrease activity during the "fight-or-flight" response.
- D) All of the choices are correct.

Answer: B

Section: 09.02

Topic: Anatomy of the sympathetic division of the ANS

Bloom's: 1. Remember; 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: H13.02 Contrast the anatomy of the parasympathetic and sympathetic systems, including central nervous system outflow locations, ganglia locations, pre- and post- ganglionic neuron relative lengths, and ganglionic and effector neurotransmitters.

20) A patient's history indicates damage to autonomic ganglia, and symptoms associated with digestive pain and dysfunction. The ganglia least likely to be damaged is _____.

- A) celiac
- B) sympathetic chain adjacent to T8
- C) sympathetic chain adjacent to T1
- D) superior mesenteric

Answer: C

Section: 09.02

Topic: Anatomy of the sympathetic division of the ANS; Clinical applications of the nervous system

Bloom's: 1. Remember; 4. Analyze

Accessibility: Keyboard Navigation

HAPS Outcome: H13.05 Contrast sympathetic innervation of the adrenal gland with sympathetic innervation of other effectors.; H16.02 Predict the types of problems that would occur in the body if the nervous system could not maintain homeostasis.

21) Ablation of the celiac ganglia would inhibit sympathetic regulation of the _____.

- A) heart
- B) bladder
- C) adrenal glands
- D) kidneys

Answer: D

Section: 09.02

Topic: Anatomy of the sympathetic division of the ANS; Clinical applications of the nervous system

Bloom's: 1. Remember; 3. Apply

Accessibility: Keyboard Navigation

HAPS Outcome: H13.05 Contrast sympathetic innervation of the adrenal gland with sympathetic innervation of other effectors.; H16.02 Predict the types of problems that would occur in the body if the nervous system could not maintain homeostasis.

22) Which of the following is NOT a collateral ganglion?

- A) Superior mesenteric
- B) Hepatic
- C) Celiac
- D) Inferior mesenteric

Answer: B

Section: 09.02

Topic: Anatomy of the sympathetic division of the ANS; Functions of the autonomic nervous system

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H13.02 Contrast the anatomy of the parasympathetic and sympathetic systems, including central nervous system outflow locations, ganglia locations, pre- and post- ganglionic neuron relative lengths, and ganglionic and effector neurotransmitters.

23) What occurs when one sympathetic preganglionic neuron synapses on several postganglionic neurons?

- A) Convergence
- B) Cooperation
- C) Divergence
- D) All of the choices are correct.

Answer: C

Section: 09.02

Topic: Anatomy of the sympathetic division of the ANS

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H13.02 Contrast the anatomy of the parasympathetic and sympathetic systems, including central nervous system outflow locations, ganglia locations, pre- and post- ganglionic neuron relative lengths, and ganglionic and effector neurotransmitters.

24) The splanchnic nerves synapse in the _____.

- A) paravertebral ganglia
- B) collateral ganglia
- C) white rami communicantes
- D) gray rami communicantes

Answer: B

Section: 09.02

Topic: Anatomy of the sympathetic division of the ANS

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H13.02 Contrast the anatomy of the parasympathetic and sympathetic systems, including central nervous system outflow locations, ganglia locations, pre- and post- ganglionic neuron relative lengths, and ganglionic and effector neurotransmitters.

25) Neural crest cells form _____.

- A) the adrenal medulla
- B) postganglionic sympathetic nerves
- C) the hypothalamus
- D) Both the adrenal medulla and postganglionic sympathetic nerves are correct.

Answer: D

Section: 09.02

Topic: Anatomy of the sympathetic division of the ANS; Development of the nervous system

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H13.02 Contrast the anatomy of the parasympathetic and sympathetic systems, including central nervous system outflow locations, ganglia locations, pre- and post- ganglionic neuron relative lengths, and ganglionic and effector neurotransmitters.

26) The adrenal medulla is a modified sympathetic ganglion that, like other postganglionic neurons, releases epinephrine onto a target tissue.

Answer: FALSE

Section: 09.02

Topic: Anatomy of the sympathetic division of the ANS; Functions of the autonomic nervous system

Bloom's: 1. Remember; 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: H13.05 Contrast sympathetic innervation of the adrenal gland with sympathetic innervation of other effectors.; H13.09 Describe major parasympathetic and/or sympathetic physiological effects on target organs.

27) Four of the twelve pairs of cranial nerves give rise to parasympathetic preganglionic neurons.

Answer: TRUE

Section: 09.02

Topic: Anatomy of the parasympathetic division of the ANS; Structure and function of cranial nerves

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H13.02 Contrast the anatomy of the parasympathetic and sympathetic systems, including central nervous system outflow locations, ganglia locations, pre- and post- ganglionic neuron relative lengths, and ganglionic and effector neurotransmitters.

28) The vagus nerve gives rise to preganglionic parasympathetic fibers involved in regulating most thoracic and abdominal organs.

Answer: TRUE

Section: 09.02

Topic: Anatomy of the parasympathetic division of the ANS; Functions of the autonomic nervous system; Structure and function of cranial nerves

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H13.02 Contrast the anatomy of the parasympathetic and sympathetic systems, including central nervous system outflow locations, ganglia locations, pre- and post- ganglionic neuron relative lengths, and ganglionic and effector neurotransmitters.

29) All of the preganglionic parasympathetic fibers synapse near their effector organs, while all of the preganglionic sympathetic fibers synapse close to the vertebrae.

Answer: FALSE

Section: 09.02

Topic: Anatomy of the parasympathetic division of the ANS

Bloom's: 1. Remember; 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: H13.02 Contrast the anatomy of the parasympathetic and sympathetic systems, including central nervous system outflow locations, ganglia locations, pre- and post- ganglionic neuron relative lengths, and ganglionic and effector neurotransmitters.

30) Which ganglia are associated with the parasympathetic division of the autonomic nervous system?

A) Paravertebral

B) Terminal

C) Collateral

D) Basal

Answer: B

Section: 09.02

Topic: Anatomy of the parasympathetic division of the ANS

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H13.02 Contrast the anatomy of the parasympathetic and sympathetic systems, including central nervous system outflow locations, ganglia locations, pre- and post- ganglionic neuron relative lengths, and ganglionic and effector neurotransmitters.

31) From where do parasympathetic preganglionic neurons originate?

- A) Brainstem
- B) Thoracic and lumbar region of the spinal cord
- C) Sacral region of the spinal cord
- D) Brainstem and sacral region of the spinal cord

Answer: D

Section: 09.02

Topic: Anatomy of the parasympathetic division of the ANS

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H13.02 Contrast the anatomy of the parasympathetic and sympathetic systems, including central nervous system outflow locations, ganglia locations, pre- and post- ganglionic neuron relative lengths, and ganglionic and effector neurotransmitters.

32) Cutaneous effectors such as blood vessels, sweat glands, and erector pili muscles are innervated by _____.

- A) only parasympathetic nerves
- B) only sympathetic nerves
- C) both parasympathetic and sympathetic nerves
- D) both parasympathetic and somatic nerves

Answer: B

Section: 09.02

Topic: Anatomy of the sympathetic division of the ANS; Functions of the autonomic nervous system

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H13.02 Contrast the anatomy of the parasympathetic and sympathetic systems, including central nervous system outflow locations, ganglia locations, pre- and post- ganglionic neuron relative lengths, and ganglionic and effector neurotransmitters.; H13.04 Describe examples of effectors innervated by only the sympathetic branch or the parasympathetic branch of the nervous system and explain how that branch by itself influences function in a given effector.

33) Damage to the _____ nerve would inhibit saliva production.

- A) abducens
- B) vagus
- C) hypoglossal
- D) facial

Answer: D

Section: 09.02

Topic: Anatomy of the parasympathetic division of the ANS; Clinical applications of the nervous system; Structure and function of cranial nerves

Bloom's: 1. Remember; 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: H13.02 Contrast the anatomy of the parasympathetic and sympathetic systems, including central nervous system outflow locations, ganglia locations, pre- and post- ganglionic neuron relative lengths, and ganglionic and effector neurotransmitters.; H13.09 Describe major parasympathetic and/or sympathetic physiological effects on target organs.; H16.02 Predict the types of problems that would occur in the body if the nervous system could not maintain homeostasis.

34) Damage to the midbrain would probably have a greater effect on the _____ division of the autonomic nervous system.

- A) sympathetic
- B) parasympathetic
- C) somatic
- D) sensory

Answer: B

Section: 09.02

Topic: Anatomy of the parasympathetic division of the ANS; Clinical applications of the nervous system

Bloom's: 1. Remember; 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: H13.02 Contrast the anatomy of the parasympathetic and sympathetic systems, including central nervous system outflow locations, ganglia locations, pre- and post- ganglionic neuron relative lengths, and ganglionic and effector neurotransmitters.

35) The parasympathetic division of the autonomic nervous system _____.

- A) has long postganglionic neurons
- B) has a single neuron arising from the spinal cord
- C) has relatively short preganglionic neurons
- D) has terminal ganglia embedded in the visceral effectors

Answer: D

Section: 09.02

Topic: Anatomy of the parasympathetic division of the ANS

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H13.02 Contrast the anatomy of the parasympathetic and sympathetic systems, including central nervous system outflow locations, ganglia locations, pre- and post- ganglionic neuron relative lengths, and ganglionic and effector neurotransmitters.

36) Damage to the terminal ganglia would have the greatest effect on _____.

- A) somatic motor neurons
- B) sympathetic motor neurons
- C) parasympathetic motor neurons
- D) somatic reflex function

Answer: C

Section: 09.02

Topic: Anatomy of the parasympathetic division of the ANS; Clinical applications of the nervous system

Bloom's: 1. Remember; 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: H13.02 Contrast the anatomy of the parasympathetic and sympathetic systems, including central nervous system outflow locations, ganglia locations, pre- and post- ganglionic neuron relative lengths, and ganglionic and effector neurotransmitters.

37) The vagus nerve innervates all of the following EXCEPT the _____.

- A) heart
- B) stomach
- C) liver
- D) iris

Answer: D

Section: 09.02

Topic: Anatomy of the parasympathetic division of the ANS; Functions of the autonomic nervous system; Structure and function of cranial nerves

Bloom's: 1. Remember; 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: H13.02 Contrast the anatomy of the parasympathetic and sympathetic systems, including central nervous system outflow locations, ganglia locations, pre- and post- ganglionic neuron relative lengths, and ganglionic and effector neurotransmitters.

38) Sympathetic stimulation of an organ ALWAYS opposes the effects of parasympathetic stimulation.

Answer: FALSE

Section: 09.03

Topic: Functions of the autonomic nervous system

Bloom's: 1. Remember; 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: H13.03 Describe examples of specific effectors dually innervated by the two branches of the autonomic nervous system and explain how each branch influences function in a given effector.

39) Damage to the thoracic and lumbar regions of the spinal cord would cause heart rate to be chronically increased compared to normal.

Answer: FALSE

Section: 09.03

Topic: Anatomy of the sympathetic division of the ANS; Clinical applications of the nervous system; Functions of the autonomic nervous system

Bloom's: 1. Remember; 3. Apply

Accessibility: Keyboard Navigation

HAPS Outcome: H13.09 Describe major parasympathetic and/or sympathetic physiological effects on target organs.; H16.02 Predict the types of problems that would occur in the body if the nervous system could not maintain homeostasis.

40) In response to sympathetic stimulation, _____; this allows for _____ during fight-or-flight.

A) pupils constrict; more acute vision

B) intestinal motility increases; greater energy availability

C) blood vessels in skeletal muscles dilate; greater oxygen delivery to the muscle

D) bronchioles vasodilate; heart rate to decrease

Answer: C

Section: 09.03

Topic: Anatomy of the sympathetic division of the ANS; Functions of the autonomic nervous system

Bloom's: 1. Remember; 5. Evaluate

Accessibility: Keyboard Navigation

HAPS Outcome: H13.03 Describe examples of specific effectors dually innervated by the two branches of the autonomic nervous system and explain how each branch influences function in a given effector.; H13.09 Describe major parasympathetic and/or sympathetic physiological effects on target organs.

41) In response to parasympathetic stimulation, _____.

- A) the pupils dilate
- B) intestinal motility increases
- C) saliva thickens
- D) heart rate increases

Answer: B

Section: 09.03

Topic: Anatomy of the sympathetic division of the ANS; Functions of the autonomic nervous system

Bloom's: 1. Remember; 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: H13.09 Describe major parasympathetic and/or sympathetic physiological effects on target organs.

42) Sympathetic and parasympathetic neurons generally release different neurotransmitters to their smooth muscle effector cells, which is why these neurons often have antagonistic effects.

Answer: TRUE

Section: 09.03

Topic: Functions of the autonomic nervous system; Neurotransmitters and their roles in synaptic transmission

Bloom's: 1. Remember; 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: H14.03 Name the neurotransmitters released at synapses with effector organs in the somatic and autonomic motor pathways and classify each effector response as excitatory or inhibitory.

43) Which autonomic division is dominant in an emergency situation?

- A) Sympathetic
- B) Parasympathetic

Answer: A

Section: 09.03

Topic: Anatomy of the sympathetic division of the ANS; Functions of the autonomic nervous system

Bloom's: 1. Remember; 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: H13.01 Discuss the two divisions of the autonomic nervous system and the general physiological roles of each.

44) Bright light would stimulate decrease in pupil diameter through _____ nerves.

- A) sympathetic
- B) parasympathetic
- C) somatic
- D) sensory

Answer: B

Section: 09.03

Topic: Anatomy of the parasympathetic division of the ANS; Functions of the autonomic nervous system; Structure and function of cranial nerves

Bloom's: 1. Remember; 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: H13.09 Describe major parasympathetic and/or sympathetic physiological effects on target organs.

45) Cocaine is a(n) _____ drug, meaning that it promotes sympathetic nerve effects.

- A) cholinergic
- B) adrenergic
- C) sympathomimetic
- D) parasympathomimetic

Answer: C

Section: 09.03

Topic: Neurotransmitters and their roles in synaptic transmission

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H14.07 Differentiate between cholinergic and adrenergic nerve fibers and discuss the physiological interactions of transmitters released by these neurons with specific cholinergic and adrenergic receptor subtypes.

46) The parasympathetic division of the autonomic nervous system _____.

- A) utilizes norepinephrine as a postganglionic neurotransmitter
- B) has a relatively short preganglionic neuron
- C) utilizes acetylcholine as a postganglionic neurotransmitter
- D) includes the adrenal medulla

Answer: C

Section: 09.03

Topic: Anatomy of the parasympathetic division of the ANS; Functions of the autonomic nervous system; Neurotransmitters and their roles in synaptic transmission

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H13.02 Contrast the anatomy of the parasympathetic and sympathetic systems, including central nervous system outflow locations, ganglia locations, pre- and post- ganglionic neuron relative lengths, and ganglionic and effector neurotransmitters.

- 47) The division of the autonomic nervous system originating only from spinal nerves _____.
A) is involved in mediating every day responses
B) has adrenergic receptors on the postganglionic cell body
C) releases acetylcholine from the postganglionic neuron
D) mediates the body's response to stress

Answer: D

Section: 09.03

Topic: Anatomy of the spinal cord and spinal nerves; Functions of the autonomic nervous system

Bloom's: 1. Remember; 3. Apply

Accessibility: Keyboard Navigation

HAPS Outcome: H13.02 Contrast the anatomy of the parasympathetic and sympathetic systems, including central nervous system outflow locations, ganglia locations, pre- and post- ganglionic neuron relative lengths, and ganglionic and effector neurotransmitters.

- 48) Which organ receives only sympathetic innervation?
A) The adrenal medulla
B) Arrector pili muscles in the skin
C) Most blood vessels
D) All of the choices are correct.

Answer: D

Section: 09.03

Topic: Anatomy of the sympathetic division of the ANS

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H13.04 Describe examples of effectors innervated by only the sympathetic branch or the parasympathetic branch of the nervous system and explain how that branch by itself influences function in a given effector.

- 49) Cocaine acts as a sympathomimetic drug because it blocks the reuptake of _____.
A) glucose
B) insulin
C) acetylcholine
D) norepinephrine

Answer: D

Section: 09.03

Topic: Anatomy of the sympathetic division of the ANS; Clinical applications of the nervous system

Bloom's: 1. Remember; 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: H13.08 Propose clinical uses of specific drugs that act at cholinergic and adrenergic receptor subtypes.

50) Because they release norepinephrine, _____ are considered adrenergic neurons.

- A) preganglionic sympathetic neurons
- B) postganglionic sympathetic neurons
- C) postganglionic parasympathetic
- D) somatic motor neurons

Answer: B

Section: 09.03

Topic: Anatomy of the sympathetic division of the ANS; Neurotransmitters and their roles in synaptic transmission

Bloom's: 1. Remember; 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: H14.03 Name the neurotransmitters released at synapses with effector organs in the somatic and autonomic motor pathways and classify each effector response as excitatory or inhibitory.

51) Compared to norepinephrine, epinephrine has one less methyl group.

Answer: FALSE

Section: 09.03

Topic: Anatomy of the sympathetic division of the ANS; Neurotransmitters and their roles in synaptic transmission

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H14.03 Name the neurotransmitters released at synapses with effector organs in the somatic and autonomic motor pathways and classify each effector response as excitatory or inhibitory.

52) Dopamine, norepinephrine, and epinephrine are all molecules of the catecholamine family.

Answer: TRUE

Section: 09.03

Topic: Anatomy of the sympathetic division of the ANS; Neurotransmitters and their roles in synaptic transmission

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H14.03 Name the neurotransmitters released at synapses with effector organs in the somatic and autonomic motor pathways and classify each effector response as excitatory or inhibitory.

53) The majority of postganglionic sympathetic neurons release _____.

- A) acetylcholine
- B) epinephrine
- C) norepinephrine
- D) dopamine

Answer: C

Section: 09.03

Topic: Anatomy of the sympathetic division of the ANS; Neurotransmitters and their roles in synaptic transmission

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H14.03 Name the neurotransmitters released at synapses with effector organs in the somatic and autonomic motor pathways and classify each effector response as excitatory or inhibitory.

54) Postganglionic _____ nerves release acetylcholine.

- A) sympathetic
- B) parasympathetic
- C) somatic
- D) sensory

Answer: B

Section: 09.03

Topic: Anatomy of the parasympathetic division of the ANS; Neurotransmitters and their roles in synaptic transmission

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H14.03 Name the neurotransmitters released at synapses with effector organs in the somatic and autonomic motor pathways and classify each effector response as excitatory or inhibitory.

55) Which of the following is a catecholamine?

- A) Norepinephrine
- B) Acetylcholine
- C) Nitric oxide
- D) All of the choices are correct.

Answer: A

Section: 09.03

Topic: Neurotransmitters and their roles in synaptic transmission

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H14.03 Name the neurotransmitters released at synapses with effector organs in the somatic and autonomic motor pathways and classify each effector response as excitatory or inhibitory.

56) The neurotransmitter released at terminal ganglia is _____.

- A) acetylcholine
- B) dopamine
- C) epinephrine
- D) norepinephrine

Answer: A

Section: 09.03

Topic: Anatomy of the parasympathetic division of the ANS; Anatomy of the sympathetic division of the ANS; Neurotransmitters and their roles in synaptic transmission

Bloom's: 1. Remember; 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: H14.03 Name the neurotransmitters released at synapses with effector organs in the somatic and autonomic motor pathways and classify each effector response as excitatory or inhibitory.

57) "Synapses en passant" refers to the fact that postganglionic autonomic neurons release neurotransmitter _____.

- A) from the axon terminal
- B) only when receptors pass over the axon
- C) along the length of the axon
- D) from the soma

Answer: C

Section: 09.03

Topic: Anatomy of the parasympathetic division of the ANS; Anatomy of the sympathetic division of the ANS; Functions of the autonomic nervous system

Bloom's: 1. Remember; 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: H14.03 Name the neurotransmitters released at synapses with effector organs in the somatic and autonomic motor pathways and classify each effector response as excitatory or inhibitory.

58) The swellings on postganglionic axons that contain neurotransmitter are called _____.

- A) synaptic bulbs
- B) axon terminals
- C) varicosities
- D) neuromuscular junctions

Answer: C

Section: 09.03

Topic: Anatomy of the parasympathetic division of the ANS; Anatomy of the sympathetic division of the ANS

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H14.03 Name the neurotransmitters released at synapses with effector organs in the somatic and autonomic motor pathways and classify each effector response as excitatory or inhibitory.

59) Neurons that secrete acetylcholine are called cholinergic fibers.

Answer: TRUE

Section: 09.03

Topic: Anatomy of the parasympathetic division of the ANS; Anatomy of the sympathetic division of the ANS; Neurotransmitters and their roles in synaptic transmission

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H14.07 Differentiate between cholinergic and adrenergic nerve fibers and discuss the physiological interactions of transmitters released by these neurons with specific cholinergic and adrenergic receptor subtypes.

60) The _____ has both α_1 and β_1 receptors and responds to sympathoadrenal stimulation with glycogenolysis and secretion of glucose.

- A) liver
- B) pancreas
- C) adrenal cortex
- D) skeletal muscle

Answer: A

Section: 09.03

Topic: Anatomy of the sympathetic division of the ANS; Functions of the autonomic nervous system

Bloom's: 1. Remember; 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: H13.07 Differentiate between cholinergic and adrenergic nerve fibers and discuss the physiological interactions of transmitters released by these neurons with specific cholinergic and adrenergic receptor subtypes.

61) Which of the following selectively stimulates α_2 receptors in brain neurons, thereby suppressing sympathoadrenal activation and lowering blood pressure?

- A) Clonidine
- B) Atropine
- C) Acetylcholine
- D) Bradykinin

Answer: A

Section: 09.03

Topic: Anatomy of the parasympathetic division of the ANS; Clinical applications of the nervous system; Functions of the autonomic nervous system

Bloom's: 1. Remember; 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: H13.07 Differentiate between cholinergic and adrenergic nerve fibers and discuss the physiological interactions of transmitters released by these neurons with specific cholinergic and adrenergic receptor subtypes.

62) Intracellular Ca^{2+} is elevated if norepinephrine binds to a(n) _____ receptor.

- A) alpha-1 adrenergic
- B) alpha-2 adrenergic
- C) beta-1 adrenergic
- D) beta-2 adrenergic

Answer: A

Section: 09.03

Topic: Anatomy of the sympathetic division of the ANS; Neurotransmitters and their roles in synaptic transmission

Bloom's: 1. Remember; 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: H13.07 Differentiate between cholinergic and adrenergic nerve fibers and discuss the physiological interactions of transmitters released by these neurons with specific cholinergic and adrenergic receptor subtypes.

63) Blocking β_2 -adrenergic receptors prevents airway _____.

- A) constriction
- B) dilation

Answer: B

Section: 09.03

Topic: Clinical applications of the nervous system; Functions of the autonomic nervous system

Bloom's: 1. Remember; 3. Apply

Accessibility: Keyboard Navigation

HAPS Outcome: H13.07 Differentiate between cholinergic and adrenergic nerve fibers and discuss the physiological interactions of transmitters released by these neurons with specific cholinergic and adrenergic receptor subtypes.

64) The second messenger mediating the effects of norepinephrine on the heart would be _____.

- A) increased intracellular Ca^{2+}
- B) decreased Ca^{2+}
- C) increased cyclic AMP
- D) decreased intracellular cyclic AMP

Answer: C

Section: 09.03

Topic: Functions of the autonomic nervous system; Neurotransmitters and their roles in synaptic transmission

Bloom's: 1. Remember; 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: H13.07 Differentiate between cholinergic and adrenergic nerve fibers and discuss the physiological interactions of transmitters released by these neurons with specific cholinergic and adrenergic receptor subtypes.

65) Epinephrine is a _____.

- A) sympathetic neurotransmitter
- B) parasympathetic neurotransmitter
- C) sympathomimetic hormone
- D) All of the choices are correct.

Answer: C

Section: 09.03

Topic: Anatomy of the sympathetic division of the ANS; Neurotransmitters and their roles in synaptic transmission

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H13.07 Differentiate between cholinergic and adrenergic nerve fibers and discuss the physiological interactions of transmitters released by these neurons with specific cholinergic and adrenergic receptor subtypes.

- 66) Phenylephrine functions as a/an _____ because it promotes _____ in nasal mucosa.
- A) α_1 agonist; vasoconstriction
 - B) α_1 antagonist; vasoconstriction
 - C) β_1 agonist; vasodilation
 - D) β_1 antagonist; vasodilation

Answer: A

Section: 09.03

Topic: Anatomy of the sympathetic division of the ANS; Functions of the autonomic nervous system; Neurotransmitters and their roles in synaptic transmission

Bloom's: 1. Remember; 3. Apply

Accessibility: Keyboard Navigation

HAPS Outcome: H13.07 Differentiate between cholinergic and adrenergic nerve fibers and discuss the physiological interactions of transmitters released by these neurons with specific cholinergic and adrenergic receptor subtypes.

- 67) Alpha₂-adrenergic receptors on presynaptic axon terminals, when stimulated, cause _____.
- A) increased release of norepinephrine
 - B) decreased release of epinephrine
 - C) increased release of epinephrine
 - D) decreased release of norepinephrine

Answer: D

Section: 09.03

Topic: Functions of the autonomic nervous system; Neurotransmitters and their roles in synaptic transmission

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H13.07 Differentiate between cholinergic and adrenergic nerve fibers and discuss the physiological interactions of transmitters released by these neurons with specific cholinergic and adrenergic receptor subtypes.

68) All adrenergic receptors act via _____.

- A) ligand-gated channels
- B) sodium-potassium pump
- C) H-proteins
- D) G-proteins

Answer: D

Section: 09.03

Topic: Functions of the autonomic nervous system; Neurotransmitters and their roles in synaptic transmission

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H13.07 Differentiate between cholinergic and adrenergic nerve fibers and discuss the physiological interactions of transmitters released by these neurons with specific cholinergic and adrenergic receptor subtypes.

69) Beta-adrenergic receptors stimulate the production of cAMP.

Answer: TRUE

Section: 09.03

Topic: Anatomy of the sympathetic division of the ANS; Neurotransmitters and their roles in synaptic transmission

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H13.07 Differentiate between cholinergic and adrenergic nerve fibers and discuss the physiological interactions of transmitters released by these neurons with specific cholinergic and adrenergic receptor subtypes.

70) Alpha-1-adrenergic receptors are mediated by _____.

- A) cAMP
- B) Ca^{2+}
- C) K^{+}
- D) Na^{+}

Answer: B

Section: 09.03

Topic: Anatomy of the sympathetic division of the ANS; Neurotransmitters and their roles in synaptic transmission

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H13.07 Differentiate between cholinergic and adrenergic nerve fibers and discuss the physiological interactions of transmitters released by these neurons with specific cholinergic and adrenergic receptor subtypes.

71) Cholinergic receptors bind neurotransmitters released from _____.

- A) adrenergic neurons
- B) preganglionic parasympathetic neurons
- C) postganglionic sympathetic neurons
- D) the adrenal medulla

Answer: B

Section: 09.03

Topic: Anatomy of the sympathetic division of the ANS; Neurotransmitters and their roles in synaptic transmission

Bloom's: 1. Remember; 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: H13.07 Differentiate between cholinergic and adrenergic nerve fibers and discuss the physiological interactions of transmitters released by these neurons with specific cholinergic and adrenergic receptor subtypes.

72) Blood flow to skeletal muscle would be _____ in response to muscarinic antagonists.

- A) increased
- B) decreased
- C) not changed

Answer: B

Section: 09.03

Topic: Clinical applications of the nervous system; Functions of the autonomic nervous system

Bloom's: 1. Remember; 3. Apply

Accessibility: Keyboard Navigation

HAPS Outcome: H13.08 Propose clinical uses of specific drugs that act at cholinergic and adrenergic receptor subtypes.

73) M_2 receptors in the heart _____.

- A) decrease heart rate
- B) increase heart rate
- C) cause increased cytosolic Ca^{2+} in heart cells
- D) cause increased spontaneous depolarization in the heart

Answer: A

Section: 09.03

Topic: Functions of the autonomic nervous system

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H13.07 Differentiate between cholinergic and adrenergic nerve fibers and discuss the physiological interactions of transmitters released by these neurons with specific cholinergic and adrenergic receptor subtypes.; H13.08 Propose clinical uses of specific drugs that act at cholinergic and adrenergic receptor subtypes.

74) Goose bumps would occur in response to _____.

- A) an adrenergic antagonist
- B) an adrenergic agonist
- C) a cholinergic antagonist
- D) a cholinergic agonist

Answer: B

Section: 09.03

Topic: Clinical applications of the nervous system; Functions of the autonomic nervous system

Bloom's: 1. Remember; 3. Apply

Accessibility: Keyboard Navigation

HAPS Outcome: H13.07 Differentiate between cholinergic and adrenergic nerve fibers and discuss the physiological interactions of transmitters released by these neurons with specific cholinergic and adrenergic receptor subtypes.

75) The collateral ganglia contain _____.

- A) α -adrenergic receptors
- B) β -adrenergic receptors
- C) muscarinic receptors
- D) nicotinic receptors

Answer: D

Section: 09.03

Topic: Anatomy of the parasympathetic division of the ANS; Anatomy of the sympathetic division of the ANS

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H13.07 Differentiate between cholinergic and adrenergic nerve fibers and discuss the physiological interactions of transmitters released by these neurons with specific cholinergic and adrenergic receptor subtypes.

76) Atropine blocks _____ receptors for _____. When administered, expected side effects may include _____.

- A) cholinergic; norepinephrine; increased visual sensitivity to light
- B) muscarinic; norepinephrine; feelings of anxiety
- C) cholinergic; ACh; dryness in the mouth
- D) muscarinic; ACh; increased blood pressure

Answer: D

Section: 09.03

Topic: Clinical applications of the nervous system; Functions of the autonomic nervous system; Neurotransmitters and their roles in synaptic transmission

Bloom's: 1. Remember; 4. Analyze

Accessibility: Keyboard Navigation

HAPS Outcome: H13.08 Propose clinical uses of specific drugs that act at cholinergic and adrenergic receptor subtypes.

77) Muscarinic antagonists would stimulate _____ pupillary diameter.

- A) an increase
- B) a decrease
- C) no change in

Answer: A

Section: 09.03

Topic: Clinical applications of the nervous system; Functions of the autonomic nervous system

Bloom's: 1. Remember; 3. Apply

Accessibility: Keyboard Navigation

HAPS Outcome: H13.07 Differentiate between cholinergic and adrenergic nerve fibers and discuss the physiological interactions of transmitters released by these neurons with specific cholinergic and adrenergic receptor subtypes.

78) Postganglionic axons which do not secrete either catecholamines or acetylcholine may secrete _____.

- A) ATP
- B) nitric oxide
- C) vasoactive intestinal peptide
- D) All of the choices are correct.

Answer: D

Section: 09.03

Topic: Neurotransmitters and their roles in synaptic transmission

Bloom's: 1. Remember; 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: H13.07 Differentiate between cholinergic and adrenergic nerve fibers and discuss the physiological interactions of transmitters released by these neurons with specific cholinergic and adrenergic receptor subtypes.

79) A defect in nitric oxide synthetase gene may result in reduced _____ of cerebral arteries since nitric oxide production would be impaired.

- A) vasoconstriction
- B) vasodilation
- C) compliance
- D) arterial pressure

Answer: B

Section: 09.03

Topic: Clinical applications of the nervous system; Neurotransmitters and their roles in synaptic transmission

Bloom's: 1. Remember; 3. Apply

Accessibility: Keyboard Navigation

HAPS Outcome: H13.07 Differentiate between cholinergic and adrenergic nerve fibers and discuss the physiological interactions of transmitters released by these neurons with specific cholinergic and adrenergic receptor subtypes.; H16.02 Predict the types of problems that would occur in the body if the nervous system could not maintain homeostasis.

80) If the effects of sympathetic and parasympathetic stimulation are similar, then the effects would be cooperative.

Answer: TRUE

Section: 09.03

Topic: Functions of the autonomic nervous system

Bloom's: 1. Remember; 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: H13.03 Describe examples of specific effectors dually innervated by the two branches of the autonomic nervous system and explain how each branch influences function in a given effector.

81) Which of the following is NOT an example of the cooperative effects of the sympathetic and parasympathetic divisions of the ANS?

- A) Micturition
- B) Male sexual function
- C) Saliva production
- D) Sweating

Answer: D

Section: 09.03

Topic: Functions of the autonomic nervous system

Bloom's: 1. Remember; 3. Apply

Accessibility: Keyboard Navigation

HAPS Outcome: H13.03 Describe examples of specific effectors dually innervated by the two branches of the autonomic nervous system and explain how each branch influences function in a given effector.

82) Which of the following organs is dually innervated?

- A) Adrenal medulla
- B) Arrector pili muscles in the skin
- C) Urinary bladder
- D) Most blood vessels

Answer: C

Section: 09.03

Topic: Anatomy of the parasympathetic division of the ANS; Anatomy of the sympathetic division of the ANS

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H13.03 Describe examples of specific effectors dually innervated by the two branches of the autonomic nervous system and explain how each branch influences function in a given effector.

83) Nonshivering thermogenesis is regulated by the _____ system.

- A) somatic nervous
- B) sympathoadrenal
- C) parasympathetic
- D) limbic

Answer: B

Section: 09.03

Topic: Functions of the autonomic nervous system

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H13.05 Contrast sympathetic innervation of the adrenal gland with sympathetic innervation of other effectors.

84) Autonomic regulation of body heat is achieved by increasing or decreasing sympathetic stimulation to the skin. This example demonstrates that the sympathetic nervous system

- _____.
- A) is primarily involved with responses to the environment and exercise, while parasympathetic regulates visceral responses
 - B) suppresses the parasympathetic responses, whenever stimulated
 - C) functions independently of the parasympathetic nervous system in specific organs or tissues
 - D) All of the choices are correct.

Answer: C

Section: 09.03

Topic: Neurotransmitters and their roles in synaptic transmission

Bloom's: 1. Remember; 5. Evaluate

Accessibility: Keyboard Navigation

HAPS Outcome: H13.02 Contrast the anatomy of the parasympathetic and sympathetic systems, including central nervous system outflow locations, ganglia locations, pre- and post- ganglionic neuron relative lengths, and ganglionic and effector neurotransmitters.; H13.03 Describe examples of specific effectors dually innervated by the two branches of the autonomic nervous system and explain how each branch influences function in a given effector.

85) Which of the following organs has dual ANS innervation?

- A) Arrector pili muscles
- B) Adrenal medulla
- C) Iris
- D) Most blood vessels

Answer: C

Section: 09.03

Topic: Functions of the autonomic nervous system

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H13.03 Describe examples of specific effectors dually innervated by the two branches of the autonomic nervous system and explain how each branch influences function in a given effector.

86) The medulla oblongata controls many autonomic activities through the _____.

- A) paravertebral ganglia
- B) vagus nerve
- C) collateral ganglia
- D) splanchnic nerves

Answer: B

Section: 09.03

Topic: Anatomy of the parasympathetic division of the ANS; Structure and function of cranial nerves

Bloom's: 1. Remember; 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: H09.02 Describe the specific functions of each of the cranial nerves and classify each as sensory, motor or mixed.; H13.02 Contrast the anatomy of the parasympathetic and sympathetic systems, including central nervous system outflow locations, ganglia locations, pre- and post- ganglionic neuron relative lengths, and ganglionic and effector neurotransmitters.; H15.01 Provide specific examples to demonstrate how the nervous system responds to maintain homeostasis in the body.

87) The _____ can control autonomic function, such that under some emotional states, visceral reactions like blushing, fainting, etc., can occur.

- A) reticular activating system
- B) medulla oblongata
- C) limbic system
- D) cerebrum

Answer: C

Section: 09.03

Topic: Functions of the autonomic nervous system

Bloom's: 1. Remember; 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: H07.07 Describe the location and functions of the limbic system.; H13.02 Contrast the anatomy of the parasympathetic and sympathetic systems, including central nervous system outflow locations, ganglia locations, pre- and post- ganglionic neuron relative lengths, and ganglionic and effector neurotransmitters.; H15.01 Provide specific examples to demonstrate how the nervous system responds to maintain homeostasis in the body.

88) The major regulatory center of the autonomic nervous system is believed to be the _____ since this brain region has functions that require appropriate activation of sympathetic and parasympathetic nerve fibers.

- A) hypothalamus
- B) thalamus
- C) midbrain
- D) cerebrum

Answer: A

Section: 09.03

Topic: Integrative functions of the brain

Bloom's: 1. Remember; 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: H07.02 Correlate functions with each major area of the adult brain.; H13.02

Contrast the anatomy of the parasympathetic and sympathetic systems, including central nervous system outflow locations, ganglia locations, pre- and post- ganglionic neuron relative lengths, and ganglionic and effector neurotransmitters.

89) Visceral reactions which accompany emotional states are due to activation of the autonomic nervous system by the _____.

- A) limbic system
- B) cerebral cortex
- C) cerebellum
- D) pons

Answer: A

Section: 09.03

Topic: Functions of the autonomic nervous system; Integrative functions of the brain

Bloom's: 1. Remember; 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: H07.07 Describe the location and functions of the limbic system.; H15.01

Provide specific examples to demonstrate how the nervous system responds to maintain homeostasis in the body.

90) Which part of the brain helps to regulate the ANS actions from the medulla during motion sickness?

- A) Hypothalamus
- B) Limbic system
- C) Cerebrum
- D) Cerebellum

Answer: D

Section: 09.03

Topic: Division, origin, and function of parts of the brain; Functions of the autonomic nervous system; Integrative functions of the brain

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H07.02 Correlate functions with each major area of the adult brain.; H13.02

Contrast the anatomy of the parasympathetic and sympathetic systems, including central nervous system outflow locations, ganglia locations, pre- and post- ganglionic neuron relative lengths, and ganglionic and effector neurotransmitters.; H15.01 Provide specific examples to demonstrate how the nervous system responds to maintain homeostasis in the body.

Human Physiology, 15e (Fox)
Chapter 12 Muscle

1) Flexors increase the angle at a joint.

Answer: FALSE

Section: 12.01

Topic: How skeletal muscles are named

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: G07.01 Explain how the name of a muscle can help identify its action, appearance, or location.

2) The origin is the point of muscle attachment that is most stationary.

Answer: TRUE

Section: 12.01

Topic: How skeletal muscles are named

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: G07.01 Explain how the name of a muscle can help identify its action, appearance, or location.

3) The more movable bony attachment is the _____.

A) flexor

B) origin

C) extensor

D) insertion

Answer: D

Section: 12.01

Topic: How skeletal muscles are named

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: G07.01 Explain how the name of a muscle can help identify its action, appearance, or location.

4) Muscles which move a limb away the midline of the body are _____ muscles.

- A) abductor
- B) adductor
- C) extensor
- D) flexor

Answer: A

Section: 12.01

Topic: How skeletal muscles are named

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: G07.01 Explain how the name of a muscle can help identify its action, appearance, or location.

5) A muscle that constricts an opening is a(n) _____.

- A) extensor
- B) levator
- C) antagonist
- D) sphincter

Answer: D

Section: 12.01

Topic: How skeletal muscles are named

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: G07.01 Explain how the name of a muscle can help identify its action, appearance, or location.

6) Making a "T" shape with your arms, so that your arms are extended out to your sides, moves _____.

- A) the insertion upward
- B) the insertion outward
- C) the limb away from the midline
- D) the limb closer to the midline

Answer: C

Section: 12.01

Topic: How skeletal muscles are named

Bloom's: 3. Apply

Accessibility: Keyboard Navigation

HAPS Outcome: G07.01 Explain how the name of a muscle can help identify its action, appearance, or location.

7) The prime mover of any skeletal movement is called the _____.

- A) flexor
- B) agonist
- C) abductor
- D) antagonist

Answer: B

Section: 12.01

Topic: How skeletal muscles are named

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: G09.01 Define the terms prime mover (or agonist), antagonist, synergist and fixator.

8) The biceps brachii causes flexion of the elbow. The triceps brachii causes extension of the elbow, so it is a(n) _____.

- A) abductor
- B) antagonist
- C) agonist
- D) levator

Answer: B

Section: 12.01

Topic: How skeletal muscles are named; Skeletal muscles of the pectoral girdle and upper limb

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: G07.01 Explain how the name of a muscle can help identify its action, appearance, or location.; G09.01 Define the terms prime mover (or agonist), antagonist, synergist and fixator.

9) Each fascicle of a muscle is surrounded by _____.

- A) perimysium
- B) epimysium
- C) endomysium
- D) sarcolemma

Answer: A

Section: 12.01

Topic: Gross anatomy of skeletal muscle

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: G03.02 Name the connective tissue layers that surround each cell, fascicle, muscle, and group of muscles and indicate the specific type of connective tissue that composes all of these layers.

10) Skeletal muscle cells are formed by embryonic myoblasts. The resulting multinucleated fiber is called a(n) _____.

- A) myoblast
- B) striation
- C) syncytium
- D) endomysium

Answer: C

Section: 12.01

Topic: Microscopic anatomy of skeletal muscle

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: G03.01 Describe the organization of muscle tissue from cell to whole muscle to groups of muscles.

11) The light band of a skeletal muscle is known as the _____.

- A) A band
- B) Z disc
- C) I band
- D) H band

Answer: C

Section: 12.01

Topic: Microscopic anatomy of skeletal muscle

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: G03.04 Explain the organization of a myofibril.

12) The specialized region of the sarcolemma at the neuromuscular junction is called the _____.

- A) syncytium
- B) varicosity
- C) fascicle
- D) motor end plate

Answer: D

Section: 12.01

Topic: Microscopic anatomy of skeletal muscle

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: G03.06 Describe the anatomy of the neuromuscular junction.

13) Increased motor unit recruitment causes _____ force generation by a muscle.
A) increased
B) decreased
C) no change in

Answer: A

Section: 12.01

Topic: Physiology of skeletal muscle contraction

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: G04.04 Describe, in order, the events that occur at the neuromuscular junction that elicit an action potential in the muscle fiber.; G06.03 Define the term motor unit.

14) Somatic motor neurons release the neurotransmitter _____ at the neuromuscular junction.
A) dopamine
B) acetylcholine
C) norepinephrine
D) serotonin

Answer: B

Section: 12.01

Topic: Physiology of skeletal muscle contraction; Neurotransmitters and their roles in synaptic transmission

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: G04.04 Describe, in order, the events that occur at the neuromuscular junction that elicit an action potential in the muscle fiber.

15) Each somatic motor neuron with all the muscle fibers it innervates is a _____.
A) fascicle
B) varicosity
C) motor unit
D) sarcolemma

Answer: C

Section: 12.01

Topic: Microscopic anatomy of skeletal muscle; Physiology of skeletal muscle contraction

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: G06.03 Define the term motor unit.

16) Thin filaments are composed of myosin and tropomyosin.

Answer: FALSE

Section: 12.02

Topic: Microscopic anatomy of skeletal muscle

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: G03.04 Explain the organization of a myofibril.; G03.05 Name, and describe the function of, each of the contractile, regulatory, and structural protein components of a sarcomere.

17) Subunits of skeletal muscle fibers that are composed of sarcomeres are called _____.

A) myofibrils

B) myofilaments

C) sarcolemmas

D) transverse tubules

Answer: A

Section: 12.02

Topic: Microscopic anatomy of skeletal muscle

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: G03.01 Describe the organization of muscle tissue from cell to whole muscle to groups of muscles.

18) What structure anchors the centers of thick filaments to one another?

A) Z disk

B) Titin

C) M line

D) Actin

Answer: C

Section: 12.02

Topic: Microscopic anatomy of skeletal muscle

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: G03.04 Explain the organization of a myofibril.; G03.05 Name, and describe the function of, each of the contractile, regulatory, and structural protein components of a sarcomere.

19) What structure runs the length of the sarcomere and contributes to the elastic recoil in muscle?

- A) Z disk
- B) Titin
- C) M line
- D) Actin

Answer: B

Section: 12.02

Topic: Microscopic anatomy of skeletal muscle

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: G03.04 Explain the organization of a myofibril.; G03.05 Name, and describe the function of, each of the contractile, regulatory, and structural protein components of a sarcomere.

20) What is the structural and functional unit of skeletal muscle?

- A) A band
- B) I band
- C) Sarcomere
- D) Myofibril

Answer: C

Section: 12.02

Topic: Microscopic anatomy of skeletal muscle

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: G03.04 Explain the organization of a myofibril.; G03.05 Name, and describe the function of, each of the contractile, regulatory, and structural protein components of a sarcomere.

21) The A band is composed primarily of _____.

- A) thick filaments
- B) thin filaments
- C) actin
- D) titin

Answer: A

Section: 12.02

Topic: Microscopic anatomy of skeletal muscle

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: G03.04 Explain the organization of a myofibril.; G03.05 Name, and describe the function of, each of the contractile, regulatory, and structural protein components of a sarcomere.

22) What protein primarily makes up the thick filament?

- A) Actin
- B) Myosin
- C) Titin
- D) Troponin

Answer: B

Section: 12.02

Topic: Microscopic anatomy of skeletal muscle

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: G03.04 Explain the organization of a myofibril.; G03.05 Name, and describe the function of, each of the contractile, regulatory, and structural protein components of a sarcomere.

23) What is the lighter area in the center of the A-band called?

- A) M-line
- B) Titin
- C) Z-disc
- D) H band

Answer: D

Section: 12.02

Topic: Microscopic anatomy of skeletal muscle

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: G03.04 Explain the organization of a myofibril.

24) During skeletal muscle contraction, the A band decreases in size.

Answer: FALSE

Section: 12.02

Topic: Microscopic anatomy of skeletal muscle; Physiology of skeletal muscle contraction

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: G04.01 Explain the sliding filament theory of muscle contraction.

25) Cross-bridge formation occurs when myosin heads attach to actin molecules located in the thin filaments.

Answer: TRUE

Section: 12.02

Topic: Microscopic anatomy of skeletal muscle; Physiology of skeletal muscle contraction

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: G04.01 Explain the sliding filament theory of muscle contraction.; G04.02 Describe the sequence of events involved in the contraction cycle of skeletal muscle.

26) Myosin contains binding sites for _____ and _____.

A) sodium; calcium

B) troponin; ATP

C) ATP; actin

D) actin; calcium

Answer: C

Section: 12.02

Topic: Microscopic anatomy of skeletal muscle; Physiology of skeletal muscle contraction

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: G03.05 Name, and describe the function of, each of the contractile, regulatory, and structural protein components of a sarcomere.; G04.02 Describe the sequence of events involved in the contraction cycle of skeletal muscle.

27) Determine what is needed for the myosin head to undergo a power stroke.

A) Release of P_i

B) Binding of ATP to the head

C) Splitting of ATP into ADP and P_i

D) Addition of Ca^{2+} to the head

Answer: A

Section: 12.02

Topic: Microscopic anatomy of skeletal muscle; Physiology of skeletal muscle contraction

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: G04.02 Describe the sequence of events involved in the contraction cycle of skeletal muscle.

28) What enzyme is needed to start the cross bridging process?

- A) Creatine phosphatase
- B) Kinase
- C) Myosin ATPase
- D) Ca^{2+} ATPase

Answer: C

Section: 12.02

Topic: Microscopic anatomy of skeletal muscle; Physiology of skeletal muscle contraction

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: G04.02 Describe the sequence of events involved in the contraction cycle of skeletal muscle.; G05.02 Describe the mechanisms that muscle fibers use to obtain ATP for muscle contraction.

29) During skeletal muscle contraction, adjacent _____ are pulled closer together as the _____ between them shorten.

- A) A bands; I bands
- B) I bands; A bands
- C) Z disks; A bands
- D) Z disks; M lines

Answer: A

Section: 12.02

Topic: Microscopic anatomy of skeletal muscle; Physiology of skeletal muscle contraction

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: G04.01 Explain the sliding filament theory of muscle contraction.

30) Why does rigor mortis result in muscular rigidity after death?

- A) The enzyme that hydrolyzes ATP is no longer being produced; therefore, the myosin heads will not receive the actin filament.
- B) ATP production is no longer possible; therefore, cross bridges cannot be formed.
- C) A buildup of intracellular calcium keeps the troponin molecule free of the active site on actin.
- D) The ATP necessary to bind to the myosin head and release the cross bridge is no longer present.

Answer: D

Section: 12.02

Topic: Microscopic anatomy of skeletal muscle; Physiology of skeletal muscle contraction;

Clinical applications of the muscular system

Bloom's: 4. Analyze

Accessibility: Keyboard Navigation

HAPS Outcome: G04.02 Describe the sequence of events involved in the contraction cycle of skeletal muscle.; G12.02 Predict the types of problems that would occur in the body if the muscular system could not maintain homeostasis.

31) During skeletal muscle contraction, _____.

- A) the H band increases in size
- B) Ca^{2+} associates with tropomyosin
- C) myosin heads interact with tropomyosin
- D) thin filaments slide across thick filaments

Answer: D

Section: 12.02

Topic: Microscopic anatomy of skeletal muscle; Physiology of skeletal muscle contraction

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: G04.01 Explain the sliding filament theory of muscle contraction.

32) Which of the following molecules is NOT part of the thin filament?

- A) Actin
- B) Titin
- C) Troponin
- D) Tropomyosin

Answer: B

Section: 12.02

Topic: Microscopic anatomy of skeletal muscle

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: G03.04 Explain the organization of a myofibril.; G03.05 Name, and describe the function of, each of the contractile, regulatory, and structural protein components of a sarcomere.

33) Which molecule blocks the myosin head from binding to actin in a relaxed muscle?

- A) Tropomyosin
- B) Troponin
- C) Calcium
- D) Titin

Answer: A

Section: 12.02

Topic: Microscopic anatomy of skeletal muscle

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: G03.05 Name, and describe the function of, each of the contractile, regulatory, and structural protein components of a sarcomere.

34) Choose the description of an event that does NOT occur during the cross bridge cycle.

- A) A new ATP binding causes cross bridges to release.
- B) ADP is released at the end of the power stroke.
- C) Energized myosin heads bind troponin.
- D) ATP hydrolysis allows for cross bridge formation.

Answer: C

Section: 12.02

Topic: Microscopic anatomy of skeletal muscle; Physiology of skeletal muscle contraction

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: G04.02 Describe the sequence of events involved in the contraction cycle of skeletal muscle.

35) The movement of the troponin-tropomyosin complex requires _____.

- A) ATP
- B) Ca^{2+}
- C) acetylcholine
- D) Na^+

Answer: B

Section: 12.02

Topic: Physiology of skeletal muscle contraction

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: G04.02 Describe the sequence of events involved in the contraction cycle of skeletal muscle.

36) Transverse tubules contain voltage-gated calcium channels that respond to membrane depolarization, and are directly coupled to the calcium release channels in the sarcoplasmic reticulum.

Answer: TRUE

Section: 12.02

Topic: Microscopic anatomy of skeletal muscle

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: G03.03 Describe a skeletal muscle fiber including the transverse (T) tubules, sarcoplasmic reticulum and myofibrils.

- 37) The Ca^{2+} required for skeletal muscle contraction _____.
- A) is released from the sarcoplasmic reticulum
 - B) enters the cell due to the opening of voltage regulated Ca^{2+} channels from the T tubules
 - C) is actively transported into the cell
 - D) is released from mitochondria

Answer: A

Section: 12.02

Topic: Microscopic anatomy of skeletal muscle; Physiology of skeletal muscle contraction

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: G03.03 Describe a skeletal muscle fiber including the transverse (T) tubules, sarcoplasmic reticulum and myofibrils.; G04.02 Describe the sequence of events involved in the contraction cycle of skeletal muscle.

- 38) The pumps that actively transport calcium back into the _____ are called Ca^{2+} -ATPase pumps.
- A) transverse tubules
 - B) sarcoplasmic reticulum
 - C) neuromuscular junction
 - D) None of the choices are correct.

Answer: B

Section: 12.02

Topic: Microscopic anatomy of skeletal muscle; Physiology of skeletal muscle contraction

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: G03.03 Describe a skeletal muscle fiber including the transverse (T) tubules, sarcoplasmic reticulum and myofibrils.

- 39) When a muscle is stimulated to contract, calcium release channels in the SR will release Ca^{2+} via _____.
- A) active transport
 - B) facilitated diffusion
 - C) simple diffusion
 - D) exocytosis

Answer: C

Section: 12.02

Topic: Microscopic anatomy of skeletal muscle; Physiology of skeletal muscle contraction

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: G03.03 Describe a skeletal muscle fiber including the transverse (T) tubules, sarcoplasmic reticulum and myofibrils.; G04.02 Describe the sequence of events involved in the contraction cycle of skeletal muscle.

40) What structures carry the action potentials into the interior of the muscle to cause muscle contraction?

- A) T tubules
- B) Terminal cisternae
- C) Sarcoplasmic reticula
- D) Ryanodine receptors

Answer: A

Section: 12.02

Topic: Microscopic anatomy of skeletal muscle; Physiology of skeletal muscle contraction

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: G03.03 Describe a skeletal muscle fiber including the transverse (T) tubules, sarcoplasmic reticulum and myofibrils.; G04.02 Describe the sequence of events involved in the contraction cycle of skeletal muscle.

41) The process by which action potentials cause muscle contraction is _____.

- A) the sliding filament theory
- B) excitation-contraction coupling
- C) the electromechanical release mechanism
- D) Both excitation-contraction coupling and the electromechanical release mechanism are correct.

Answer: D

Section: 12.02

Topic: Microscopic anatomy of skeletal muscle; Physiology of skeletal muscle contraction

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: G04.05 Explain what is meant by the expression "excitation-contraction coupling".

42) Which of the following is NOT true of the relaxation of a muscle fiber?

- A) ATP is needed to fuel the calcium pumps.
- B) Calcium release channels in the sarcoplasmic reticulum close.
- C) Calcium moves from troponin to tropomyosin.
- D) Ca^{2+} moves from the sarcoplasm to the sarcoplasmic reticulum.

Answer: C

Section: 12.02

Topic: Physiology of skeletal muscle contraction

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: G03.03 Describe a skeletal muscle fiber including the transverse (T) tubules, sarcoplasmic reticulum and myofibrils.; G04.02 Describe the sequence of events involved in the contraction cycle of skeletal muscle.; G04.05 Explain what is meant by the expression "excitation-contraction coupling".

43) Imagine if no ATP was available. Predict the consequences of this on skeletal muscle contraction and relaxation.

- A) The active sites on actin would never be exposed.
- B) Cross bridges would remain attached after muscle contraction.
- C) Ca^{2+} would be unable to leave the sarcoplasmic reticulum upon depolarization of the sarcolemma.
- D) All of the choices are correct.

Answer: B

Section: 12.02

Topic: Physiology of skeletal muscle contraction; Skeletal muscle metabolism

Bloom's: 3. Apply

Accessibility: Keyboard Navigation

HAPS Outcome: G04.02 Describe the sequence of events involved in the contraction cycle of skeletal muscle.; G05.02 Describe the mechanisms that muscle fibers use to obtain ATP for muscle contraction.

44) The inability of muscle cells to relax due to high frequency stimulation is called _____.

- A) treppe
- B) recruitment
- C) twitch
- D) tetanus

Answer: D

Section: 12.03

Topic: Physiology of skeletal muscle contraction

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: G06.04a Interpret a myogram or graph of tension vs. stimulus frequency and explain the physiological basis for the phenomena of treppe, summation and tetanus.

45) The staircase effect or _____ represents a warm up effect due to increasing intracellular calcium concentrations.

- A) treppe
- B) tetanus
- C) incomplete tetanus
- D) tonus

Answer: A

Section: 12.03

Topic: Physiology of skeletal muscle contraction

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: G06.04a Interpret a myogram or graph of tension vs. stimulus frequency and explain the physiological basis for the phenomena of treppe, summation and tetanus.

46) When a muscle cell generates tension but does not shorten, a(n) _____ contraction occurs.

- A) isometric
- B) isotonic
- C) spastic
- D) flaccid

Answer: A

Section: 12.03

Topic: Physiology of skeletal muscle contraction

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: G06.05 Demonstrate isotonic and isometric contraction and interpret graphs of tension vs. time and muscle length vs. time for each type of contraction.

47) Muscle contractions that produce a shortening muscle with a constant contraction strength at a given load are termed _____.

- A) treppe contractions
- B) isotonic contractions
- C) twitch contractions
- D) isometric contractions

Answer: B

Section: 12.03

Topic: Physiology of skeletal muscle contraction

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: G06.05 Demonstrate isotonic and isometric contraction and interpret graphs of tension vs. time and muscle length vs. time for each type of contraction.

48) A force-velocity curve shows the _____ relationship between the force opposing muscle contraction and the velocity of muscle shortening.

- A) direct
- B) inverse
- C) increased
- D) no

Answer: B

Section: 12.03

Topic: Physiology of skeletal muscle contraction

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: G06.04b Interpret a myogram or graph of tension vs. stimulus intensity and explain the physiological basis for the phenomenon of recruitment.

49) A muscle contraction against a resistance greater than the force of contraction causes muscle lengthening is called a(n) _____ contraction.

- A) concentric
- B) isometric
- C) eccentric
- D) isokinetic

Answer: C

Section: 12.03

Topic: Physiology of skeletal muscle contraction

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: G06.06 Demonstrate concentric and eccentric contraction and contrast the relative tension and resistance that exists, as well as the change in muscle length that occurs, in each type of contraction.

50) The series-elastic component of contraction _____.

- A) absorbs some of the tension of muscle contraction
- B) provides for elastic recoil when muscles contract
- C) is unrelated to muscle shortening
- D) is not provided by tendons

Answer: A

Section: 12.03

Topic: Physiology of skeletal muscle contraction

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: G06.04c Interpret a graph of the length-tension relationship and discuss the anatomical basis for that relationship.

51) Which of the following does NOT increase the strength of the muscle contraction?

- A) A high number of fibers stimulated
- B) Increased frequency of stimulation
- C) Thicker muscle fiber
- D) Increasing the resting length of the sarcomere

Answer: D

Section: 12.03

Topic: Physiology of skeletal muscle contraction

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: G06.02 Define the terms tension and contraction, with respect to muscles.; G06.04c Interpret a graph of the length-tension relationship and discuss the anatomical basis for that relationship.

52) In regards to the relationship between resting muscle fiber length and tension generated, _____.

- A) maximal tension is generated when the thick and thin filaments slightly overlap
- B) maximal tension is generated when the thick and thin filaments do not overlap
- C) maximal tension is generated when the thick and thin filaments greatly overlap
- D) the amount of overlap is unimportant in determining maximal tension

Answer: A

Section: 12.03

Topic: Physiology of skeletal muscle contraction

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: G06.02 Define the terms tension and contraction, with respect to muscles.; G06.04c Interpret a graph of the length-tension relationship and discuss the anatomical basis for that relationship.

53) After aerobic glycolysis, phosphate molecules produced are stored in skeletal muscle as creatine phosphate.

Answer: FALSE

Section: 12.04

Topic: Skeletal muscle metabolism

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: G05.01 List the sources of energy stored in a typical muscle fiber.

54) Insertion of _____ in the muscle cell membrane increases cellular glucose uptake.

- A) GLUT1
- B) GLUT2
- C) GLUT3
- D) GLUT4

Answer: D

Section: 12.04

Topic: Skeletal muscle metabolism; Mechanisms for transport across cell membranes

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: G05.01 List the sources of energy stored in a typical muscle fiber.

55) Skeletal muscles at rest obtain most of their energy from the aerobic respiration of _____.

- A) glucose
- B) protein
- C) fatty acids
- D) glycogen

Answer: C

Section: 12.04

Topic: Skeletal muscle metabolism

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: G05.01 List the sources of energy stored in a typical muscle fiber.

56) For muscle contraction to occur, ATP and its hydrolyzed forms are needed for the _____.

- A) attachment of myosin cross bridges to actin
- B) release of myosin cross bridges from actin
- C) pumping of Ca^{2+} back into the sarcoplasmic reticulum
- D) All of the choices are correct.

Answer: D

Section: 12.04

Topic: Physiology of skeletal muscle contraction; Skeletal muscle metabolism

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: G04.02 Describe the sequence of events involved in the contraction cycle of skeletal muscle.; G05.01 List the sources of energy stored in a typical muscle fiber.

57) During the first 30 minutes of heavy exercise _____.

- A) most energy is derived from glycogen and plasma glucose
- B) the percentage of energy obtained from plasma free fatty acids exceeds that of mild exercise
- C) the percentage of energy obtain from plasma glucose is less than that of moderate exercise
- D) All of the choices are correct.

Answer: A

Section: 12.04

Topic: Skeletal muscle metabolism; Metabolism of carbohydrates

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: G05.01 List the sources of energy stored in a typical muscle fiber.; O03.01g Predict the metabolic conditions that would favor each of the following processes: glycogenesis, glycogenolysis and gluconeogenesis.

58) Blood lactate will begin to rise when exercise is performed at a rate that is _____.

- A) 15% of VO_{2max}
- B) 25% of VO_{2max}
- C) 50% of VO_{2max}
- D) 85% of VO_{2max}

Answer: C

Section: 12.04

Topic: Skeletal muscle metabolism; Metabolism of carbohydrates

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: G05.02 Describe the mechanisms that muscle fibers use to obtain ATP for muscle contraction.; O03.01d Describe the anaerobic process for generating ATP, including conditions under which it occurs and its products and their functions.

59) Fatty acids provide the majority of the energy for muscle metabolism when a person is exercising at _____.

- A) 25% of VO_{2max}
- B) 50% of VO_{2max}
- C) 75% of VO_{2max}
- D) 100% of VO_{2max}

Answer: A

Section: 12.04

Topic: Skeletal muscle metabolism; Metabolism of lipids

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: G05.01 List the sources of energy stored in a typical muscle fiber.; O03.03b Describe the basic process of lipogenesis and lipolysis.

60) The first 1 to 2 minutes of moderate to heavy exercise relies on _____ for ATP production.

- A) aerobic respiration of glucose
- B) anaerobic respiration of glucose
- C) aerobic respiration of fatty acids
- D) anaerobic respiration of amino acids

Answer: B

Section: 12.04

Topic: Skeletal muscle metabolism; Metabolism of carbohydrates

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: G05.02 Describe the mechanisms that muscle fibers use to obtain ATP for muscle contraction.; O03.01d Describe the anaerobic process for generating ATP, including conditions under which it occurs and its products and their functions.

- 61) Repaying the oxygen debt requires replacing oxygen that was _____.
- A) bound to blood hemoglobin and muscle myoglobin
 - B) needed to metabolize lactic acid
 - C) used for tissue warm up
 - D) All of the choices are correct.

Answer: D

Section: 12.04

Topic: Skeletal muscle metabolism

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: G05.03 Explain the factors that contribute to muscle fatigue.

- 62) An increase in plasma creatine phosphokinase could indicate _____.
- A) muscular dystrophy
 - B) liver disease
 - C) heart attack
 - D) Both muscular dystrophy and heart attack are correct.

Answer: D

Section: 12.04

Topic: Skeletal muscle metabolism; Clinical applications of the muscular system

Bloom's: 3. Apply

Accessibility: Keyboard Navigation

HAPS Outcome: G05.01 List the sources of energy stored in a typical muscle fiber.; G12.01 Predict factors or situations affecting the muscular system that could disrupt homeostasis.

- 63) Slow oxidative/Type I muscle fibers would be the predominant fiber recruited during a marathon run because _____.
- A) the small diameter of the muscles would allow someone to perform work for a longer period of time without fatigue
 - B) the greater number of mitochondria present in Type I muscle fiber would provide sustained amounts of ATP for muscle contraction
 - C) the increased concentration of myosin ATPase would allow for faster hydrolysis of ATP than Type II muscle fibers
 - D) the rate of twitch is faster in Type I than Type II muscle fibers, which will lead to better race performance

Answer: B

Section: 12.04

Topic: Microscopic anatomy of skeletal muscle; Physiology of skeletal muscle contraction

Bloom's: 3. Apply

Accessibility: Keyboard Navigation

HAPS Outcome: G03.07 List the anatomical and metabolic characteristics of fast, slow, and intermediate muscle fibers.

- 64) Fast oxidative, Type IIA muscle fibers _____.
- A) have many capillaries
 - B) produce ATP through both aerobic and anaerobic metabolism
 - C) have a high myoglobin content
 - D) are small diameter

Answer: B

Section: 12.04

Topic: Microscopic anatomy of skeletal muscle; Skeletal muscle metabolism

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: G03.07 List the anatomical and metabolic characteristics of fast, slow, and intermediate muscle fibers.

- 65) Fast glycolytic/Type IIX white muscle fibers _____.
- A) have a high glycogen content
 - B) have many capillaries
 - C) have a high oxidative capacity
 - D) are predominantly recruited during low intensity activities

Answer: A

Section: 12.04

Topic: Microscopic anatomy of skeletal muscle; Skeletal muscle metabolism

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: G03.07 List the anatomical and metabolic characteristics of fast, slow, and intermediate muscle fibers.

- 66) Slow twitch fibers have a _____ oxidative capacity and _____ glycogen content.
- A) high; high
 - B) high; low
 - C) low; low
 - D) low; high

Answer: B

Section: 12.04

Topic: Microscopic anatomy of skeletal muscle; Skeletal muscle metabolism

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: G03.07 List the anatomical and metabolic characteristics of fast, slow, and intermediate muscle fibers.

67) A long-distance bicyclist wants to start doing intense strength training for his legs to improve his aerobic endurance. This _____ improve his aerobic endurance, since _____.

- A) will not; resistance training targets type I fibers, which fatigue quickly
- B) will; strength training targets primarily Type IIx muscle fibers, which fatigue quickly
- C) will; resistance training greatly increases mitochondrial density in muscle, increasing aerobic capacity
- D) will not; strength training targets primarily Type IIx muscle fibers, which fatigue quickly

Answer: D

Section: 12.04

Topic: Microscopic anatomy of skeletal muscle; Skeletal muscle metabolism

Bloom's: 4. Analyze

Accessibility: Keyboard Navigation

HAPS Outcome: G03.07 List the anatomical and metabolic characteristics of fast, slow, and intermediate muscle fibers.

68) Muscle fatigue occurs _____.

- A) when muscles are only partially able to contract
- B) when muscle cell glycogen is depleted
- C) when muscle cell pH increases
- D) due to decreased extracellular K^+

Answer: B

Section: 12.04

Topic: Microscopic anatomy of skeletal muscle; Skeletal muscle metabolism

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: G05.03 Explain the factors that contribute to muscle fatigue.

69) Central fatigue is caused by _____.

- A) decreased H^+ concentration in the muscle cells
- B) increased glycogen in muscle cells
- C) changes in the CNS
- D) All of the choices are correct.

Answer: C

Section: 12.04

Topic: Microscopic anatomy of skeletal muscle; Physiology of skeletal muscle contraction

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: G05.03 Explain the factors that contribute to muscle fatigue.

70) Which of the following is NOT a contributing factor to skeletal muscle fatigue?

- A) Increased intracellular K^+
- B) Depletion of intracellular K^+
- C) Accumulation of extracellular K^+
- D) Accumulation of cytoplasmic PO_4^{3-}

Answer: A

Section: 12.04

Topic: Physiology of skeletal muscle contraction

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: G05.03 Explain the factors that contribute to muscle fatigue.

71) The amount of fat stored inside skeletal muscle fibers is _____ by endurance training.

- A) increased
- B) decreased
- C) unchanged

Answer: A

Section: 12.04

Topic: Skeletal muscle metabolism

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: G05.01 List the sources of energy stored in a typical muscle fiber.; G05.02 Describe the mechanisms that muscle fibers use to obtain ATP for muscle contraction.

72) Endurance training results in increased _____.

- A) muscle mitochondria number
- B) glycogen depletion during exercise
- C) number of type IIX fibers
- D) lactate production per unit time

Answer: A

Section: 12.04

Topic: Skeletal muscle metabolism; Effects of aging and exercise on the muscular system

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: G03.07 List the anatomical and metabolic characteristics of fast, slow, and intermediate muscle fibers.; G05.02 Describe the mechanisms that muscle fibers use to obtain ATP for muscle contraction.

73) The greater the level of physical training, the higher the proportion of energy derived from the oxidation of _____ during exercise below VO_{2max} .

- A) glucose
- B) protein
- C) amino acids
- D) fatty acids

Answer: D

Section: 12.04

Topic: Skeletal muscle metabolism; Effects of aging and exercise on the muscular system; Metabolism of lipids

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: G05.02 Describe the mechanisms that muscle fibers use to obtain ATP for muscle contraction.

74) The decline in physical strength of older persons is due to _____.

- A) decreased size of fast-twitch fibers
- B) reduced density of blood capillaries
- C) reduced muscle mass
- D) All of the choices are correct.

Answer: D

Section: 12.04

Topic: Microscopic anatomy of skeletal muscle; Skeletal muscle metabolism; Effects of aging and exercise on the muscular system

Bloom's: 3. Apply

Accessibility: Keyboard Navigation

HAPS Outcome: G03.07 List the anatomical and metabolic characteristics of fast, slow, and intermediate muscle fibers.; G12.02 Predict the types of problems that would occur in the body if the muscular system could not maintain homeostasis.

75) Muscle hypertrophy is due to _____.

- A) increased number of myofibrils in the muscle fiber
- B) increased number of muscle fibers
- C) increased size of the myofibrils
- D) Both increased number of myofibrils in the muscle fiber and increased size of the myofibrils.

Answer: D

Section: 12.04

Topic: Microscopic anatomy of skeletal muscle; Effects of aging and exercise on the muscular system

Bloom's: 3. Apply

Accessibility: Keyboard Navigation

HAPS Outcome: G03.07 List the anatomical and metabolic characteristics of fast, slow, and intermediate muscle fibers.; G11.01 Provide specific examples to demonstrate how the muscular system responds to maintain homeostasis in the body.

76) Myostatin is _____.

- A) a paracrine regulator that inhibits satellite cell function and muscle growth
- B) a paracrine regulator that stimulates satellite cell function and muscle growth
- C) an autocrine regulator that inhibits satellite cell function and muscle growth
- D) an autocrine regulator that stimulates satellite cell function and muscle growth

Answer: A

Section: 12.04

Topic: Microscopic anatomy of skeletal muscle

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: G03.01 Describe the organization of muscle tissue from cell to whole muscle to groups of muscles.; G11.01 Provide specific examples to demonstrate how the muscular system responds to maintain homeostasis in the body.

77) Formation of new sarcomeres and growth of myofibrils requires which of the following proteins?

- A) Titin
- B) Nebulin
- C) Obscurin
- D) All of the choices are correct.

Answer: D

Section: 12.04

Topic: Microscopic anatomy of skeletal muscle; Effects of aging and exercise on the muscular system

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: G03.01 Describe the organization of muscle tissue from cell to whole muscle to groups of muscles.

78) Muscle repair is due to _____ forming myotubes that fuse to form new muscle fibers.

- A) satellite cells
- B) myofibrils
- C) muscle cells
- D) All of the choices are correct.

Answer: A

Section: 12.04

Topic: Microscopic anatomy of skeletal muscle

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: G03.01 Describe the organization of muscle tissue from cell to whole muscle to groups of muscles.; G11.01 Provide specific examples to demonstrate how the muscular system responds to maintain homeostasis in the body.

79) Damage to the ventral nerve root would prevent the muscle spindle from transmitting information to the central nervous system.

Answer: FALSE

Section: 12.05

Topic: Clinical applications of the muscular system; Clinical applications of the nervous system; Physiology of sensory and motor pathways in the brain and spinal cord

Bloom's: 4. Analyze

Accessibility: Keyboard Navigation

HAPS Outcome: G04.03 Explain how an electrical signal from the nervous system arrives at the neuromuscular junction.; G12.01 Predict factors or situations affecting the muscular system that could disrupt homeostasis.; H06.01 Describe exteroceptors, interoceptors and proprioceptors in terms of the general location of each in the body and the origin of the stimuli that each receives.

80) The muscle spindle is associated with _____.

- A) extrafusal fibers
- B) tendons
- C) intrafusal fibers
- D) Golgi tendon organs

Answer: C

Section: 12.05

Topic: Microscopic anatomy of skeletal muscle; Physiology of skeletal muscle contraction

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: G04.03 Explain how an electrical signal from the nervous system arrives at the neuromuscular junction.; H06.01 Describe exteroceptors, interoceptors and proprioceptors in terms of the general location of each in the body and the origin of the stimuli that each receives.

81) Alpha motor neurons innervate _____.

- A) nuclear chain fibers
- B) nuclear bag fibers
- C) extrafusal fibers
- D) intrafusal fibers

Answer: C

Section: 12.05

Topic: Microscopic anatomy of skeletal muscle; Physiology of skeletal muscle contraction

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: G04.03 Explain how an electrical signal from the nervous system arrives at the neuromuscular junction.

82) The stretch reflex is enhanced in response to activation of _____.

- A) the Golgi tendon organ
- B) alpha motor neurons
- C) gamma motor neurons
- D) lower motor neurons

Answer: C

Section: 12.05

Topic: Physiology of skeletal muscle contraction; Physiology of sensory and motor pathways in the brain and spinal cord; Reflexes and their roles in nervous system function

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: G04.03 Explain how an electrical signal from the nervous system arrives at the neuromuscular junction.; H06.01 Describe exteroceptors, interoceptors and proprioceptors in terms of the general location of each in the body and the origin of the stimuli that each receives.

83) Coactivation of alpha and gamma motor neurons is stimulated by _____ neurons.

- A) upper motor
- B) lower motor
- C) intermotor
- D) sensory

Answer: A

Section: 12.05

Topic: Physiology of skeletal muscle contraction; Physiology of sensory and motor pathways in the brain and spinal cord

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: G04.03 Explain how an electrical signal from the nervous system arrives at the neuromuscular junction.

84) The _____ reflex prevents excessive muscle contraction.

- A) flexor
- B) cross-extensor
- C) Golgi tendon
- D) muscle spindle

Answer: C

Section: 12.05

Topic: Physiology of skeletal muscle contraction; Reflexes and their roles in nervous system function

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: G04.03 Explain how an electrical signal from the nervous system arrives at the neuromuscular junction.; H06.01 Describe exteroceptors, interoceptors and proprioceptors in terms of the general location of each in the body and the origin of the stimuli that each receives.

85) Damage to the lower motor neurons would result in _____.

- A) heightened muscle tone
- B) clonus
- C) heightened reflex responses
- D) loss of muscle tone

Answer: D

Section: 12.05

Topic: Physiology of skeletal muscle contraction; Clinical applications of the muscular system; Physiology of sensory and motor pathways in the brain and spinal cord

Bloom's: 3. Apply

Accessibility: Keyboard Navigation

HAPS Outcome: G04.03 Explain how an electrical signal from the nervous system arrives at the neuromuscular junction.; H12.02 Describe the locations and functions of the upper and lower motor neurons in a motor pathway.

86) Excitation of the Golgi tendon organ normally causes _____.

- A) contraction of a muscle's extrafusal fibers
- B) relaxation of a muscle's extrafusal fibers
- C) contraction of a muscle's intrafusal fibers
- D) relaxation of a muscle's intrafusal fibers

Answer: B

Section: 12.05

Topic: Physiology of skeletal muscle contraction; Reflexes and their roles in nervous system function

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: G04.03 Explain how an electrical signal from the nervous system arrives at the neuromuscular junction.; H06.01 Describe exteroceptors, interoceptors and proprioceptors in terms of the general location of each in the body and the origin of the stimuli that each receives.

87) The crossed-extensor reflex demonstrates double reciprocal innervation.

Answer: TRUE

Section: 12.05

Topic: Physiology of skeletal muscle contraction; Reflexes and their roles in nervous system function

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: H11.05 Describe a stretch reflex, a flexor (withdrawal) reflex, and a crossed-extensor reflex, and name all components of each reflex arc.

88) The inhibition of an antagonistic muscle so that the agonist can do the intended movement is due to _____.

- A) crossed-extensor reflex
- B) monosynaptic reflex
- C) reciprocal innervation
- D) flaccid paralysis

Answer: C

Section: 12.05

Topic: Physiology of skeletal muscle contraction; Reflexes and their roles in nervous system function

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: H11.05 Describe a stretch reflex, a flexor (withdrawal) reflex, and a crossed-extensor reflex, and name all components of each reflex arc.

89) If head trauma caused motor deficits to occur, it is likely that _____ was damaged. This would be indicated by the presence of _____.

- A) upper motor neuron; spastic paralysis
- B) upper motor neuron; chorea
- C) lower motor neuron; weakness
- D) lower motor neuron; flaccid paralysis

Answer: D

Section: 12.05

Topic: Clinical applications of the muscular system; Clinical applications of the nervous system; Physiology of sensory and motor pathways in the brain and spinal cord

Bloom's: 4. Analyze

Accessibility: Keyboard Navigation

HAPS Outcome: G12.02 Predict the types of problems that would occur in the body if the muscular system could not maintain homeostasis.; H12.02 Describe the locations and functions of the upper and lower motor neurons in a motor pathway.

90) The pyramidal tracts include the _____ and _____ tracts.

- A) rubrospinal; lateral corticospinal
- B) reticulospinal; anterior corticospinal
- C) anterior corticospinal; lateral corticospinal
- D) rubrospinal; reticulospinal

Answer: C

Section: 12.05

Topic: Physiology of sensory and motor pathways in the brain and spinal cord; Anatomy of the spinal cord and spinal nerves

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: H10.07 Distinguish between ascending and descending tracts in the spinal cord.

91) Random uncontrolled contractions of different muscle groups as a result of damage to the basal nuclei is a symptom of upper motor neuron damage called _____.

- A) intention tremor
- B) Babinski's reflex
- C) chorea
- D) resting tremor

Answer: C

Section: 12.05

Topic: Clinical applications of the muscular system; Clinical applications of the nervous system; Physiology of sensory and motor pathways in the brain and spinal cord

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: G12.02 Predict the types of problems that would occur in the body if the muscular system could not maintain homeostasis.; H12.02 Describe the locations and functions of the upper and lower motor neurons in a motor pathway.

92) An individual suffering damage to the basal nuclei resulting in a lack of desire to use a limb would be suffering from _____.

- A) Parkinson's disease
- B) chorea
- C) intention tremor
- D) akinesia

Answer: D

Section: 12.05

Topic: Clinical applications of the muscular system; Clinical applications of the nervous system; Physiology of sensory and motor pathways in the brain and spinal cord

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: G12.01 Predict factors or situations affecting the muscular system that could disrupt homeostasis.; H12.02 Describe the locations and functions of the upper and lower motor neurons in a motor pathway.

93) Shaking of limbs at rest that disappears during voluntary movement due to damage to the basal nuclei is called _____.

- A) chorea
- B) resting tremor
- C) intention tremor
- D) spastic paralysis

Answer: B

Section: 12.05

Topic: Clinical applications of the muscular system; Clinical applications of the nervous system; Physiology of sensory and motor pathways in the brain and spinal cord

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: G12.01 Predict factors or situations affecting the muscular system that could disrupt homeostasis.; G12.02 Predict the types of problems that would occur in the body if the muscular system could not maintain homeostasis.

94) Cardiac action potentials usually originate in _____ cells.

- A) Purkinje
- B) chordae tendinae
- C) pacemaker
- D) septal

Answer: C

Section: 12.06

Topic: Identification, location, and comparison of three types of muscle tissue; Physiology of cardiac muscle contraction and the electrocardiogram

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: G02.02 Describe the structure, location in the body and function of skeletal, cardiac and smooth muscle.

95) Choose the statement that correctly categorizes cardiac muscle tissue.

- A) Dense bodies anchor thin filaments.
- B) The fibers lack I and A bands.
- C) The intercalated discs contain gap junctions.
- D) The fibers of cardiac muscle lack branches.

Answer: C

Section: 12.06

Topic: Identification, location, and comparison of three types of muscle tissue; Physiology of cardiac muscle contraction and the electrocardiogram

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: G02.02 Describe the structure, location in the body and function of skeletal, cardiac and smooth muscle.; G05.05 Compare and contrast the metabolism of skeletal, cardiac and smooth muscle.

96) If voltage-gated Calcium channels were unable to function, cardiac muscle would still receive action potentials, but be unable to shorten.

Answer: FALSE

Section: 12.06

Topic: Identification, location, and comparison of three types of muscle tissue; Physiology of cardiac muscle contraction and the electrocardiogram

Bloom's: 3. Apply

Accessibility: Keyboard Navigation

HAPS Outcome: G02.02 Describe the structure, location in the body and function of skeletal, cardiac and smooth muscle.; G02.03 Compare and contrast the characteristics of skeletal, cardiac and smooth muscle.

97) The _____ molecule is attached to dense bodies in smooth muscle cells.

- A) actin
- B) myosin
- C) troponin
- D) tropomyosin

Answer: A

Section: 12.06

Topic: Identification, location, and comparison of three types of muscle tissue

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: G02.02 Describe the structure, location in the body and function of skeletal, cardiac and smooth muscle.

98) In smooth muscle cells, _____ functions in a manner analogous to troponin.

- A) myoglobin
- B) calmodulin
- C) tropomyosin
- D) titin

Answer: B

Section: 12.06

Topic: Identification, location, and comparison of three types of muscle tissue

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: G02.02 Describe the structure, location in the body and function of skeletal, cardiac and smooth muscle.; G05.05 Compare and contrast the metabolism of skeletal, cardiac and smooth muscle.

99) Calcium that is needed to activate cross-bridging in smooth muscle mainly comes from _____.

- A) endoplasmic reticulum
- B) extracellular fluid
- C) intracellular fluid
- D) dense bodies

Answer: B

Section: 12.06

Topic: Identification, location, and comparison of three types of muscle tissue

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: G02.02 Describe the structure, location in the body and function of skeletal, cardiac and smooth muscle.; G05.05 Compare and contrast the metabolism of skeletal, cardiac and smooth muscle.

100) What condition of smooth muscle allows it to maintain contraction for long periods of time?

- A) Latch state
- B) Gap junctions
- C) Peristalsis
- D) Myogenic activity

Answer: A

Section: 12.06

Topic: Identification, location, and comparison of three types of muscle tissue

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: G02.02 Describe the structure, location in the body and function of skeletal, cardiac and smooth muscle.; G05.05 Compare and contrast the metabolism of skeletal, cardiac and smooth muscle.

101) In single-unit smooth muscle, _____.

- A) all cells receive direct autonomic stimulation
- B) cells display pacemaker activity
- C) cells do not respond to stretch
- D) norepinephrine binds to muscarinic receptors and closes K^+ channels

Answer: B

Section: 12.06

Topic: Identification, location, and comparison of three types of muscle tissue

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: G02.02 Describe the structure, location in the body and function of skeletal, cardiac and smooth muscle.

102) Which of the following is the most likely immediate effect of high extracellular Ca^{2+} on skeletal muscle function?

- A) Decreased strength of contraction
- B) No effect
- C) Inability to contract
- D) Uncontrolled contraction

Answer: D

Section: 12.02

Topic: Physiology of skeletal muscle contraction

Bloom's: 4. Analyze

Accessibility: Keyboard Navigation

HAPS Outcome: G12.01 Predict factors or situations affecting the muscular system that could disrupt homeostasis.

103) Myasthenia Gravis is a disease characterized by the production of antibodies against nicotinic acetylcholine receptors, resulting in a decreased number of functioning receptors at motor end plates. Which kind of drug would most likely help with the symptoms of Myasthenia Gravis?

- A) A GABA-ergic antagonist
- B) A monoamine oxidase inhibitor
- C) A muscarinic antagonist
- D) An acetylcholinesterase inhibitor

Answer: D

Section: 12.02

Topic: Physiology of skeletal muscle contraction; Clinical applications of the muscular system; Neurotransmitters and their roles in synaptic transmission

Bloom's: 4. Analyze

Accessibility: Keyboard Navigation

HAPS Outcome: G03.06 Describe the anatomy of the neuromuscular junction.; G12.01 Predict factors or situations affecting the muscular system that could disrupt homeostasis.

104) Myasthenia Gravis is a disease characterized by the production of antibodies against nicotinic acetylcholine receptors resulting in a decrease of functioning receptors at motor end plates. What would you expect to find as a result of this process?

- A) Clonus
- B) Increased frequency of motor neuron firing
- C) Chorea
- D) Hyperactivity of skeletal muscles

Answer: B

Section: 12.02

Topic: Physiology of skeletal muscle contraction; Clinical applications of the muscular system; Neurotransmitters and their roles in synaptic transmission

Bloom's: 4. Analyze

Accessibility: Keyboard Navigation

HAPS Outcome: G03.06 Describe the anatomy of the neuromuscular junction.; G12.01 Predict factors or situations affecting the muscular system that could disrupt homeostasis.

105) While administering an EMG, the technician notices a decrease in the electrical activity being measured. How would this impact the muscle being measured?

- A) Electrical activity is unrelated to force generation in the muscle.
- B) Action potentials frequency would increase in the muscle if electrical activity decreased.
- C) Force generated by the muscle would decrease.
- D) Force generated by the muscle would increase.

Answer: D

Section: 12.02

Topic: Physiology of skeletal muscle contraction; Clinical applications of the muscular system

Bloom's: 4. Analyze

Accessibility: Keyboard Navigation

HAPS Outcome: G03.06 Describe the anatomy of the neuromuscular junction.

106) Muscle glycogen stores would be broken down during an exercise bout lasting several hours because _____.

- A) exercising muscle needs the fatty acids released from glycogen for energy
- B) exercising muscle can only utilize glucose for energy for long-term exercise
- C) exercising muscle utilizes both glucose and free fatty acids for energy during long-term exercise
- D) glycogen can enter the mitochondria and produce more ATP than glucose

Answer: C

Section: 12.04

Topic: Skeletal muscle metabolism; Effects of aging and exercise on the muscular system

Bloom's: 4. Analyze

Accessibility: Keyboard Navigation

HAPS Outcome: G05.01 List the sources of energy stored in a typical muscle fiber.; G05.02 Describe the mechanisms that muscle fibers use to obtain ATP for muscle contraction.

107) If an individual is exercising at a low intensity for several hours, how would the concentrations of substrates change in plasma?

- A) Plasma levels of amino acids would increase, as protein breakdown would be needed to fuel continued exercise.
- B) They remain stable and unaffected by exercise.
- C) Plasma levels of free fatty acids would increase as triglycerides are broken down for sustained energy.
- D) Plasma glucose levels would gradually increase the longer exercise continues.

Answer: C

Section: 12.04

Topic: Skeletal muscle metabolism; Effects of aging and exercise on the muscular system

Bloom's: 4. Analyze

Accessibility: Keyboard Navigation

HAPS Outcome: G05.01 List the sources of energy stored in a typical muscle fiber.; G05.02 Describe the mechanisms that muscle fibers use to obtain ATP for muscle contraction.

108) An individual steps on a nail with her left foot. In response to this, what reflex responses should occur?

- A) The flexor muscles of the left leg will contract to maintain balance.
- B) Both the flexors and extensors of the ipsilateral side would contract.
- C) The extensor muscles of the right leg will contract to maintain balance.
- D) Only the flexors on the contralateral side would contract.

Answer: C

Section: 12.05

Topic: Physiology of skeletal muscle contraction

Bloom's: 3. Apply

Accessibility: Keyboard Navigation

HAPS Outcome: H11.05 Describe a stretch reflex, a flexor (withdrawal) reflex, and a crossed-extensor reflex, and name all components of each reflex arc.

Human Physiology, 15e (Fox)
Chapter 13 Blood, Heart, and Circulation

1) The circulatory system helps to maintain normal body temperature.

Answer: TRUE

Section: 13.01

Topic: General functions of the cardiovascular system; Body temperature regulation

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K01.01 Describe the major functions of the cardiovascular system.

2) Transportation functions of the circulatory system include _____.

- A) carrying oxygen and carbon dioxide
- B) carrying metabolic waste
- C) carrying leukocytes
- D) carrying absorbed products of digestion
- E) All of the choices are correct.

Answer: E

Section: 13.01

Topic: General functions of the cardiovascular system

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K01.01 Describe the major functions of the cardiovascular system.

3) The circulatory system is able to provide regulation of other body systems by circulating _____.

- A) clotting
- B) hormones
- C) immunity
- D) blood gases

Answer: B

Section: 13.01

Topic: General functions of the cardiovascular system

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: K01.01 Describe the major functions of the cardiovascular system.

4) How does the circulatory system function in a protective role in the body?

- A) Prevents blood loss through clotting
- B) Leukocytes fight infection
- C) Delivers leukocytes to areas of inflammation and infection
- D) All of the choices are correct.

Answer: D

Section: 13.01

Topic: General functions of the cardiovascular system

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: K01.01 Describe the major functions of the cardiovascular system.

5) Interstitial fluid is derived from _____.

- A) lymph
- B) cells
- C) plasma
- D) formed elements

Answer: C

Section: 13.01

Topic: Composition of blood plasma; Introduction to body fluids and fluid compartments

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K02.01 Describe the overall composition of plasma, including the major types of plasma proteins, their functions and where in the body they are produced.

6) Arteries usually carry oxygen-rich blood toward the heart.

Answer: FALSE

Section: 13.01

Topic: Anatomy and functional roles of blood vessel types; Systemic blood circulation

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K13.01b State which blood vessel type carries oxygen-rich blood and which type carries oxygen-poor blood in systemic and pulmonary circuits.; K03.03a With respect to the functional roles of formed elements, state the function of red blood cells.

7) The "buffy coat" is made up of thrombocytes and leukocytes.

Answer: TRUE

Section: 13.02

Topic: Microscopic anatomy of formed elements of blood

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K03.01b With respect to the structure and numbers of formed elements in blood, compare and contrast the morphological features of erythrocytes and the five types of leukocytes.; K03.01a Identify microscopically each of the following: erythrocytes (red blood cells or RBCs), the five types of leukocytes (white blood cells or WBCs), and thrombocytes (platelets).

8) Damage to capillaries would prevent cells from exchanging gases and nutrients with one another.

Answer: FALSE

Section: 13.01

Topic: Anatomy and functional roles of blood vessel types; Capillary exchange

Bloom's: 4. Analyze

Accessibility: Keyboard Navigation

HAPS Outcome: K12.04a Correlate the anatomical structure of capillaries with their functions.

9) Dark red colored blood would be found in the _____, traveling to the _____.

A) arteries; heart

B) veins; heart

C) heart; veins

D) capillaries; arteries

Answer: B

Section: 13.02

Topic: Venous blood return; Systemic blood circulation

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: K13.01b State which blood vessel type carries oxygen-rich blood and which type carries oxygen-poor blood in systemic and pulmonary circuits.

10) How much blood does the average-sized adult have?

- A) 2 liters
- B) 4 liters
- C) 5 liters
- D) 7 liters

Answer: C

Section: 13.02

Topic: Systemic blood circulation

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K03.01c With respect to the structure and numbers of formed elements in blood, state the normal ranges for erythrocyte counts and hematocrit (both male and female), total leukocyte count, and platelet count.

11) A normal hematocrit for women would be _____.

- A) 30%
- B) 40%
- C) 48%
- D) 52%

Answer: B

Section: 13.02

Topic: Microscopic anatomy of formed elements of blood

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K03.01c With respect to the structure and numbers of formed elements in blood, state the normal ranges for erythrocyte counts and hematocrit (both male and female), total leukocyte count, and platelet count.

12) If blood was only serum, it would lack the ability to stop bleeding when necessary.

Answer: TRUE

Section: 13.02

Topic: Composition of blood plasma; Microscopic anatomy of formed elements of blood

Bloom's: 3. Apply

Accessibility: Keyboard Navigation

HAPS Outcome: K02.01 Describe the overall composition of plasma, including the major types of plasma proteins, their functions and where in the body they are produced.

13) The major plasma protein is _____.

- A) alpha globulin
- B) beta globulin
- C) fibrinogen
- D) albumin

Answer: D

Section: 13.02

Topic: Composition of blood plasma

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K02.01 Describe the overall composition of plasma, including the major types of plasma proteins, their functions and where in the body they are produced.

14) Decreased liver protein synthesis would cause the amount of _____ and _____ in the blood to be decreased.

- A) thromboplastin; RBCs
- B) RBCs; WBCs
- C) albumin; fibrinogen
- D) platelets; albumin

Answer: C

Section: 13.02

Topic: Composition of blood plasma; Hemostasis, including coagulation of blood; Clinical applications of the cardiovascular system

Bloom's: 3. Apply

Accessibility: Keyboard Navigation

HAPS Outcome: K02.01 Describe the overall composition of plasma, including the major types of plasma proteins, their functions and where in the body they are produced.

15) Blood globulins include which of the following types?

- A) Alpha globulins
- B) Beta globulins
- C) Gamma globulins
- D) All of the choices are correct.

Answer: D

Section: 13.02

Topic: Composition of blood plasma

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K02.01 Describe the overall composition of plasma, including the major types of plasma proteins, their functions and where in the body they are produced.

16) Which blood globulin is an antibody that helps fight infection?

- A) Alpha globulin
- B) Beta globulin
- C) Gamma globulin
- D) None of the choices are correct.

Answer: C

Section: 13.02

Topic: Composition of blood plasma; Antibodies and their role in adaptive immunity

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K02.01 Describe the overall composition of plasma, including the major types of plasma proteins, their functions and where in the body they are produced.

17) Individuals with an increased hematocrit would likely be anemic.

Answer: FALSE

Section: 13.02

Topic: Functional roles of formed elements of blood; Clinical applications of the cardiovascular system

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: K03.01c With respect to the structure and numbers of formed elements in blood, state the normal ranges for erythrocyte counts and hematocrit (both male and female), total leukocyte count, and platelet count.; K16.01 Predict factors or situations affecting the cardiovascular system that could disrupt homeostasis.

18) A normal red blood cell count is in the range of _____ /mm³.

- A) 4.23–5.98 million
- B) 4,300–10,800
- C) 120–220
- D) 130,000–400,000

Answer: A

Section: 13.02

Topic: Microscopic anatomy of formed elements of blood

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K03.01c With respect to the structure and numbers of formed elements in blood, state the normal ranges for erythrocyte counts and hematocrit (both male and female), total leukocyte count, and platelet count.

19) Having no nucleus, a biconcave shape, and the function of gas transport would describe a _____.

- A) red blood cell
- B) platelet
- C) white blood cell
- D) albumin

Answer: A

Section: 13.02

Topic: Microscopic anatomy of formed elements of blood

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K03.01b With respect to the structure and numbers of formed elements in blood, compare and contrast the morphological features of erythrocytes and the five types of leukocytes.; K03.01a Identify microscopically each of the following: erythrocytes (red blood cells or RBCs), the five types of leukocytes (white blood cells or WBCs), and thrombocytes (platelets).

20) Which part of the red blood cell can bind to oxygen?

- A) Globin part of hemoglobin
- B) Cell cytoplasm
- C) Heme part of hemoglobin
- D) Plasma membrane

Answer: C

Section: 13.02

Topic: Microscopic anatomy of formed elements of blood; Mechanisms of gas transport in the blood

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K03.03b With respect to the functional roles of formed elements, discuss the structure and function of hemoglobin, as well as its breakdown products.

21) Iron is transported in the blood by the protein _____.

- A) globin
- B) fibrinogen
- C) transferrin
- D) albumin

Answer: C

Section: 13.02

Topic: Functional roles of formed elements of blood

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K03.03b With respect to the functional roles of formed elements, discuss the structure and function of hemoglobin, as well as its breakdown products.

22) A patient has a large portion of his stomach removed during a weight reduction surgery. Following this procedure, he experiences fatigue and is short of breath upon exertion. His surgery most likely resulted in _____.

- A) iron-deficiency anemia
- B) pernicious anemia
- C) aplastic anemia
- D) leukemia

Answer: B

Section: 13.02

Topic: Functional roles of formed elements of blood; Clinical applications of the cardiovascular system

Bloom's: 4. Analyze

Accessibility: Keyboard Navigation

HAPS Outcome: K16.01 Predict factors or situations affecting the cardiovascular system that could disrupt homeostasis.

23) Polycythemia would be induced by _____ in the blood.

- A) decreased oxygen
- B) increased oxygen
- C) decreased carbon dioxide
- D) increased infection

Answer: A

Section: 13.02

Topic: Functional roles of formed elements of blood; Clinical applications of the cardiovascular system

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: K15.01 Provide specific examples to demonstrate how the cardiovascular system responds to maintain homeostasis in the body.

24) Which of the following is NOT a characteristic of white blood cells?

- A) Have nuclei and mitochondria
- B) Have amoeboid movement
- C) Can leave blood vessels
- D) Make up the major formed element

Answer: D

Section: 13.02

Topic: Functional roles of formed elements of blood

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K03.01b With respect to the structure and numbers of formed elements in blood, compare and contrast the morphological features of erythrocytes and the five types of leukocytes.

25) The most common type of anemia is _____.

- A) polycythemia
- B) pernicious anemia
- C) iron-deficiency anemia
- D) aplastic anemia

Answer: C

Section: 13.02

Topic: Clinical applications of the cardiovascular system

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K16.01 Predict factors or situations affecting the cardiovascular system that could disrupt homeostasis.

26) The most abundant leukocytes in the blood are the _____.

- A) eosinophils
- B) basophils
- C) neutrophils
- D) monocytes

Answer: C

Section: 13.02

Topic: Microscopic anatomy of formed elements of blood

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K03.01d With respect to the structure and numbers of formed elements in blood, list the five types of leukocytes in order of their relative prevalence in normal blood and classify each type as granulocyte or agranulocyte.

27) Which of the following is NOT a granulocyte?

- A) Neutrophil
- B) Eosinophil
- C) Monocyte
- D) Basophil

Answer: C

Section: 13.02

Topic: Microscopic anatomy of formed elements of blood

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K03.01b With respect to the structure and numbers of formed elements in blood, compare and contrast the morphological features of erythrocytes and the five types of leukocytes.; K03.01d With respect to the structure and numbers of formed elements in blood, list the five types of leukocytes in order of their relative prevalence in normal blood and classify each type as granulocyte or agranulocyte.

28) Which of the following cells produces antibodies?

- A) Monocyte
- B) Plasma cell
- C) Basophil
- D) Neutrophil

Answer: B

Section: 13.02

Topic: Functional roles of formed elements of blood; Antibodies and their role in adaptive immunity

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: K03.03c With respect to the functional roles of formed elements, describe functions for each of the five major types of leukocytes as well as the two major subtypes of lymphocytes (T and B).

29) Blood would clot more slowly in an individual with 100,000 platelets/mm³.

Answer: TRUE

Section: 13.02

Topic: Functional roles of formed elements of blood; Hemostasis, including coagulation of blood

Bloom's: 3. Apply

Accessibility: Keyboard Navigation

HAPS Outcome: K03.01c With respect to the structure and numbers of formed elements in blood, state the normal ranges for erythrocyte counts and hematocrit (both male and female), total leukocyte count, and platelet count.

30) Leukocytes secrete serotonin, which will reduce the loss of blood.

Answer: FALSE

Section: 13.02

Topic: Functional roles of formed elements of blood; Hemostasis, including coagulation of blood

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: K03.03d With respect to the functional roles of formed elements, state the function of platelets.

31) The development of _____ would be inhibited if the actions of granulocyte colony stimulating factor were blocked.

A) thrombocytes

B) neutrophils

C) erythrocytes

D) lymphocytes

Answer: B

Section: 13.02

Topic: Functional roles of formed elements of blood

Bloom's: 3. Apply

Accessibility: Keyboard Navigation

HAPS Outcome: K03.02c With respect to development of formed elements, discuss the difference in leukopoiesis of granulocytes and agranulocytes.

32) The process of blood cell formation is _____.

A) leukocytosis

B) polycythemia

C) hematopoiesis

D) hemogenesis

Answer: C

Section: 13.02

Topic: Microscopic anatomy of formed elements of blood

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K03.02a With respect to development of formed elements, describe the location of hematopoiesis and the significance of the pluripotent stem cell (hemocytoblast).

33) What is the major hematopoietic organ in the fetus?

- A) Liver
- B) Spleen
- C) Red bone marrow
- D) Kidneys

Answer: A

Section: 13.02

Topic: Fetal blood circulation

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K03.02a With respect to development of formed elements, describe the location of hematopoiesis and the significance of the pluripotent stem cell (hemocytoblast).

34) Which organ secretes erythropoietin?

- A) Kidneys
- B) Liver
- C) Bone marrow
- D) Lungs

Answer: A

Section: 13.02

Topic: Microscopic anatomy of formed elements of blood; Physiology of hormones and hormone secretion

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K03.02b With respect to development of formed elements, explain the basic process of erythropoiesis, the significance of the reticulocyte, and regulation through erythropoietin.

35) What is the stimulus for the release of erythropoietin?

- A) Low RBC count
- B) Decreased blood oxygen levels
- C) Low amount of hemoglobin
- D) All of the choices are correct.

Answer: D

Section: 13.02

Topic: Microscopic anatomy of formed elements of blood; Physiology of hormones and hormone secretion

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: K03.02b With respect to development of formed elements, explain the basic process of erythropoiesis, the significance of the reticulocyte, and regulation through erythropoietin.

36) What substances are needed to produce red blood cells?

- A) Vitamin B12
- B) Folic acid
- C) Iron
- D) All of the choices are correct.

Answer: D

Section: 13.02

Topic: Microscopic anatomy of formed elements of blood

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: K03.02b With respect to development of formed elements, explain the basic process of erythropoiesis, the significance of the reticulocyte, and regulation through erythropoietin.

37) How does hepcidin function in iron homeostasis?

- A) Increases production of transferrin
- B) Promotes cellular storage of iron by removing ferroportin channels in enterocytes
- C) Promotes production and insertion of ferroportin channels in enterocytes
- D) Increases macrophage destruction of old red blood cells to release iron

Answer: B

Section: 13.02

Topic: Functional roles of formed elements of blood

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: K03.02b With respect to development of formed elements, explain the basic process of erythropoiesis, the significance of the reticulocyte, and regulation through erythropoietin.; K03.03b With respect to the functional roles of formed elements, discuss the structure and function of hemoglobin, as well as its breakdown products.

38) When the wrong blood type is given to a patient, the antibodies in the patient's blood react with the antigens on the surface of the transfused blood causing a reaction called _____.

- A) neutralization
- B) precipitation
- C) agglutination
- D) coagulation

Answer: C

Section: 13.02

Topic: ABO and Rh blood grouping; Clinical applications of the cardiovascular system

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K05.05 Predict which blood types are compatible and what happens when the incorrect ABO or Rh blood type is transfused.

39) John has blood type B. In an emergency, John could receive which of the following blood types?

- A) B only
- B) AB only
- C) O only
- D) B or O

Answer: D

Section: 13.02

Topic: ABO and Rh blood grouping; Clinical applications of the cardiovascular system

Bloom's: 3. Apply

Accessibility: Keyboard Navigation

HAPS Outcome: K05.06 State which blood type is considered the universal donor and which blood type is considered the universal recipient, and explain why.

40) What type of antigens are present in Type O blood?

- A) A only
- B) B only
- C) Both A and B
- D) Neither A nor B

Answer: D

Section: 13.02

Topic: ABO and Rh blood grouping

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: K05.02 List the type of antigen and the type of antibodies present in each ABO blood type.

41) Erythroblastosis fetalis occurs when _____.

- A) the mother has blood type A and the fetus has blood type O
- B) the mother has Rh⁺ blood and the fetus has Rh⁻ blood
- C) the mother has Rh⁻ blood and the fetus has Rh⁺ blood
- D) the mother has type AB blood and the fetus has type O blood

Answer: C

Section: 13.02

Topic: ABO and Rh blood grouping; Clinical applications of the cardiovascular system

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: K16.01 Predict factors or situations affecting the cardiovascular system that could disrupt homeostasis.; K05.03 Describe how the presence or absence of Rh antigen results in blood being classified as positive or negative.

42) A person with Rh⁻ blood will normally have antibodies against Rh present in their blood.

Answer: FALSE

Section: 13.02

Topic: ABO and Rh blood grouping

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: K05.03 Describe how the presence or absence of Rh antigen results in blood being classified as positive or negative.

43) Mary has type AB blood. Which type of antibodies is present in her plasma?

A) Anti-A

B) Anti-B

C) Anti-A and anti-B

D) Neither anti-A nor anti-B

Answer: D

Section: 13.02

Topic: ABO and Rh blood grouping

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: K05.02 List the type of antigen and the type of antibodies present in each ABO blood type.

44) The prostaglandin, thromboxane A₂, stimulates _____.

A) vasodilation

B) platelet aggregation

C) platelet repelling

D) vasoconstriction

Answer: B

Section: 13.02

Topic: Hemostasis, including coagulation of blood

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K04.06 Explain the mechanisms of action and give examples of procoagulants, anticoagulants and fibrinolytic drugs.

45) Prostacyclin, PGI₂, prevents _____.

- A) vasomotion
- B) platelet aggregation
- C) vasoconstriction
- D) clot retraction

Answer: B

Section: 13.02

Topic: Hemostasis, including coagulation of blood

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K04.06 Explain the mechanisms of action and give examples of procoagulants, anticoagulants and fibrinolytic drugs.

46) Which substance does NOT inhibit platelet aggregation?

- A) Nitric oxide
- B) Prostacyclin
- C) von Willebrand factor
- D) CD39

Answer: C

Section: 13.02

Topic: Hemostasis, including coagulation of blood

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: K04.06 Explain the mechanisms of action and give examples of procoagulants, anticoagulants and fibrinolytic drugs.

47) Which of the following stimulates the formation of the platelet plug?

- A) von Willebrand's factor
- B) ADP
- C) Thromboxane A₂
- D) All of the choices are correct.

Answer: D

Section: 13.02

Topic: Hemostasis, including coagulation of blood

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K04.02b Describe the role of platelets and the steps involved in the formation of the platelet plug.

48) The platelet release reaction is initiated by platelets binding to exposed collagen in a broken membrane.

Answer: TRUE

Section: 13.02

Topic: Hemostasis, including coagulation of blood

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: K04.02b Describe the role of platelets and the steps involved in the formation of the platelet plug.

49) Damage to tissues stimulates the activation of the _____ pathway.

A) complement

B) hemophilic

C) intrinsic

D) extrinsic

Answer: D

Section: 13.02

Topic: Hemostasis, including coagulation of blood

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K04.02d Differentiate between the intrinsic and extrinsic clotting mechanisms of hemostasis.

50) What ion is necessary for the clotting process?

A) Na⁺

B) K⁺

C) Ca²⁺

D) Mg²⁺

Answer: C

Section: 13.02

Topic: Hemostasis, including coagulation of blood

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K04.04 Explain the role of calcium ions and vitamin K in blood clotting.

- 51) What is the role of serotonin in blood clotting?
- A) Causes platelets to become sticky
 - B) Enhances the platelet release reaction
 - C) Causes vasoconstriction of blood vessels to slow loss of blood
 - D) Converts fibrinogen to fibrin

Answer: C

Section: 13.02

Topic: Hemostasis, including coagulation of blood

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K04.02a Describe the vascular phase including the role of endothelial cells of hemostasis.

- 52) Hemophilia is _____.
- A) an X-linked trait
 - B) more prevalent in women
 - C) results in excessive blood clots
 - D) All of the choices are correct.

Answer: A

Section: 13.02

Topic: Hemostasis, including coagulation of blood; Clinical applications of the cardiovascular system

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K16.01 Predict factors or situations affecting the cardiovascular system that could disrupt homeostasis.

- 53) Aspirin inhibits blood clotting by directly preventing _____.
- A) thrombin formation
 - B) platelet plug formation
 - C) fibrin formation
 - D) clot retraction

Answer: B

Section: 13.02

Topic: Hemostasis, including coagulation of blood

Bloom's: 3. Apply

Accessibility: Keyboard Navigation

HAPS Outcome: K04.06 Explain the mechanisms of action and give examples of procoagulants, anticoagulants and fibrinolytic drugs.

54) The final protein that forms a blood clot is _____.

- A) fibrin
- B) thrombin
- C) thromboplastin
- D) plasmin

Answer: A

Section: 13.02

Topic: Hemostasis, including coagulation of blood

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K04.02c Describe the basic steps involved in the formation of the insoluble fibrin clot of hemostasis.

55) Both the intrinsic and extrinsic clotting pathways activate factors that _____.

- A) convert prothrombin to thrombin
- B) convert fibrinogen to fibrin
- C) convert plasminogen to plasmin
- D) None of the choices are correct.

Answer: A

Section: 13.02

Topic: Hemostasis, including coagulation of blood

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K04.02d Differentiate between the intrinsic and extrinsic clotting mechanisms of hemostasis.

56) What is the enzyme that converts soluble fibrinogen to insoluble fibrin?

- A) Prothrombin
- B) Thrombin
- C) Thromboplastin
- D) Plasmin

Answer: B

Section: 13.02

Topic: Hemostasis, including coagulation of blood

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K04.02c Describe the basic steps involved in the formation of the insoluble fibrin clot of hemostasis.

57) Kallikrein is responsible for _____.

- A) clot dissolution
- B) serum production
- C) platelet plug formation
- D) fibrin formation

Answer: A

Section: 13.02

Topic: Hemostasis, including coagulation of blood

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K04.06 Explain the mechanisms of action and give examples of procoagulants, anticoagulants and fibrinolytic drugs.; K04.05 Discuss the process of fibrinolysis, including the roles of plasminogen, tissue plasminogen activator and plasmin.

58) Vitamin K is needed for _____.

- A) proper clotting factor function
- B) directly activating fibrinogen
- C) directly stabilizing the fibrin polymer
- D) activating antithrombin III

Answer: A

Section: 13.02

Topic: Hemostasis, including coagulation of blood

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: K04.04 Explain the role of calcium ions and vitamin K in blood clotting.

59) Which anticoagulant and its action is NOT correctly matched?

- A) Aspirin—inhibits prostaglandin production and platelet aggregation
- B) Heparin—inhibits action of thrombin
- C) Coumadin—inhibits tissue thromboplastin
- D) Citrate—combines with calcium to prevent its function with clotting factors

Answer: C

Section: 13.02

Topic: Hemostasis, including coagulation of blood

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: K04.06 Explain the mechanisms of action and give examples of procoagulants, anticoagulants and fibrinolytic drugs.

60) The pulmonary veins return oxygen depleted blood to the right atrium.

Answer: FALSE

Section: 13.03

Topic: Anatomy and functional roles of blood vessel types; Venous blood return; Systemic blood circulation

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K08.01 Identify the major blood vessels entering and leaving the heart and classify them as either an artery or a vein and as containing either oxygen-rich or oxygen-poor blood.

61) The pathway of blood from the heart to the lungs and back to the heart is the _____ circulation.

A) cardiac

B) systemic

C) pulmonary

D) pleural

Answer: C

Section: 13.03

Topic: Pulmonary blood circulation

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K13.01a Describe the systemic and pulmonary circuits and discuss the functions of each.

62) The oxygen content of arteries in the pulmonary circulation is high.

Answer: FALSE

Section: 13.03

Topic: Pulmonary blood circulation

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: K08.01 Identify the major blood vessels entering and leaving the heart and classify them as either an artery or a vein and as containing either oxygen-rich or oxygen-poor blood.

63) A greater pressure in the right ventricle than the aorta causes the pulmonary valve to open.

Answer: FALSE

Section: 13.03

Topic: Blood flow through the heart

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: K06.04 Compare and contrast the structure and function of the atrioventricular and the semilunar valves.

64) If the _____ were not properly functioning, congestion in the venous system would be an expected sign.

A) tricuspid valve

B) bicuspid valve

C) mitral valve

D) pulmonary semilunar valve

Answer: A

Section: 13.03

Topic: Gross anatomy of the heart; Blood flow through the heart

Bloom's: 4. Analyze

Accessibility: Keyboard Navigation

HAPS Outcome: K06.03 Identify and describe the function of the primary internal structures of the heart, including chambers, septa, valves, papillary muscles, chordae tendineae, and venous and arterial openings.

65) What structures keep the AV valves from everting under high ventricular pressure?

A) Annuli fibrosis

B) Interventricular and interatrial septa

C) Papillary muscles and chordae tendineae

D) Semilunar valves

Answer: C

Section: 13.03

Topic: Gross anatomy of the heart; Blood flow through the heart

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K06.03 Identify and describe the function of the primary internal structures of the heart, including chambers, septa, valves, papillary muscles, chordae tendineae, and venous and arterial openings.

66) The amount of blood ejected by the ventricles per beat is termed the _____.
A) cardiac output
B) end diastolic volume
C) blood pressure
D) stroke volume

Answer: D

Section: 13.04

Topic: Regulation of cardiac output, stroke volume and heart rate

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K11.01a Define cardiac output, and state its units of measurement.

67) Closure of the atrioventricular valves occurs at the end of diastole/beginning of systole.

Answer: TRUE

Section: 13.04

Topic: Cardiac cycle

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K10.05 Relate the opening and closing of specific heart valves in each phase of the cardiac cycle to pressure changes in the heart chambers.

68) During isovolumetric ventricular contraction, ventricular pressure is _____.
A) increasing
B) decreasing
C) unchanged

Answer: A

Section: 13.04

Topic: Cardiac cycle

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: K10.02 Describe the phases of the cardiac cycle including ventricular filling, isovolumetric contraction, ventricular ejection, and isovolumetric relaxation.; K10.07 Define systolic and diastolic blood pressure and interpret a graph of aortic pressure versus time during the cardiac cycle.

69) During isovolumetric ventricular relaxation _____.

- A) left ventricular pressure exceeds aortic pressure
- B) atrial pressure is less than ventricular pressure
- C) ventricular pressure is increasing
- D) the atrioventricular valves are open

Answer: B

Section: 13.04

Topic: Cardiac cycle

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: K10.02 Describe the phases of the cardiac cycle including ventricular filling, isovolumetric contraction, ventricular ejection, and isovolumetric relaxation.; K10.07 Define systolic and diastolic blood pressure and interpret a graph of aortic pressure versus time during the cardiac cycle.

70) The first heart sound is produced when the semilunar valves close.

Answer: FALSE

Section: 13.04

Topic: Cardiac cycle

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K10.06 Relate the heart sounds to the events of the cardiac cycle.

71) Heart murmurs may be caused by _____. This causes valves to be less compliant, creating difficulty for blood to move from one chamber to another.

- A) stenosis
- B) fibrillation
- C) regurgitation
- D) septal defects

Answer: A

Section: 13.03

Topic: Blood flow through the heart; Cardiac cycle; Clinical applications of the cardiovascular system

Bloom's: 3. Apply

Accessibility: Keyboard Navigation

HAPS Outcome: K16.02 Predict the types of problems that would occur in the body if the cardiovascular system could not maintain homeostasis.

72) In the fetus, blood can flow from the right atrium to the left atrium through the _____.

- A) tricuspid valve
- B) ductus arteriosus
- C) foramen ovale
- D) ductus venosus

Answer: C

Section: 13.03

Topic: Fetal blood circulation

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K13.04b Identify the ductus venosus, foramen ovale, and ductus arteriosus and explain their roles in fetal circulation.

73) Valves are said to be _____ when they do not close properly and blood leaks through them.

- A) stenotic
- B) weak
- C) incompetent
- D) flappy

Answer: C

Section: 13.03

Topic: Blood flow through the heart; Clinical applications of the cardiovascular system

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K16.01 Predict factors or situations affecting the cardiovascular system that could disrupt homeostasis.

74) Systole refers to the _____ of the ventricles, when pressure is _____.

- A) relaxation; lowest
- B) filling; highest
- C) contraction; highest
- D) blood flow; lowest

Answer: C

Section: 13.04

Topic: Cardiac cycle

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: K10.01 Define cardiac cycle, systole, and diastole.

75) Increasing the time that the heart spends in diastole has the potential to increase stroke volume.

Answer: TRUE

Section: 13.04

Topic: Cardiac cycle

Bloom's: 3. Apply

Accessibility: Keyboard Navigation

HAPS Outcome: K10.02 Describe the phases of the cardiac cycle including ventricular filling, isovolumetric contraction, ventricular ejection, and isovolumetric relaxation.

76) What causes the semilunar valves to close?

- A) Higher pressure in the ventricles than in the atria
- B) Higher pressure in the aorta and pulmonary trunk than in the ventricles
- C) Higher pressure in the atria than in the ventricles
- D) Higher pressure in the ventricles than aorta and pulmonary trunk

Answer: B

Section: 13.04

Topic: Cardiac cycle

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: K10.05 Relate the opening and closing of specific heart valves in each phase of the cardiac cycle to pressure changes in the heart chambers.

77) What occurs when the pressure in the ventricles drops below the pressure of the atria?

- A) AV valves open
- B) AV valves close
- C) SL valves open
- D) SL valves close

Answer: A

Section: 13.04

Topic: Cardiac cycle

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: K10.05 Relate the opening and closing of specific heart valves in each phase of the cardiac cycle to pressure changes in the heart chambers.

78) The ventricles completely empty when they contract in systole.

Answer: FALSE

Section: 13.04

Topic: Cardiac cycle

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: K11.02a Define end diastolic volume (EDV) and end systolic volume (ESV) and calculate stroke volume (SV) given values for EDV and ESV.

79) A medication that blocks the calcium channels in the heart muscle would cause a decrease in heart rate.

Answer: TRUE

Section: 13.05

Topic: Physiology of cardiac muscle contraction and the electrocardiogram; Clinical applications of the cardiovascular system

Bloom's: 3. Apply

Accessibility: Keyboard Navigation

HAPS Outcome: K09.01a List the parts of the conduction system of the heart and explain how the system functions.

80) Cardiac _____ channels are called hyperpolarization cyclic nucleotide (HCN) channels because they open in response to hyperpolarization.

A) atrial

B) Purkinje

C) pacemaker

D) ventricular

Answer: C

Section: 13.05

Topic: Physiology of cardiac muscle contraction and the electrocardiogram

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K07.02 Contrast the way action potentials are generated in cardiac pacemaker cells, in cardiac contractile cells and in skeletal muscle cells.

81) The myocardium acts as a single unit called a(n) _____.

- A) multi-unit muscle
- B) pacemaker
- C) isoelectric unit
- D) functional syncytium

Answer: D

Section: 13.05

Topic: Physiology of cardiac muscle contraction and the electrocardiogram

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K06.06 Identify myocardium and describe its histological structure, including the significance of intercalated discs.; K07.02 Contrast the way action potentials are generated in cardiac pacemaker cells, in cardiac contractile cells and in skeletal muscle cells.

82) What part of the heart's conduction system acts as the primary pacemaker?

- A) SA node
- B) AV node
- C) Bundle of His
- D) Purkinje fibers

Answer: A

Section: 13.05

Topic: Physiology of cardiac muscle contraction and the electrocardiogram; Regulation of cardiac output, stroke volume and heart rate

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K09.01a List the parts of the conduction system of the heart and explain how the system functions.

83) The action potential of cardiac pacemaker cells is caused by _____.

- A) inward diffusion of Na^+
- B) inward diffusion of Ca^{2+}
- C) inward diffusion of K^+
- D) outward diffusion of K^+

Answer: B

Section: 13.05

Topic: Physiology of cardiac muscle contraction and the electrocardiogram

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K07.02 Contrast the way action potentials are generated in cardiac pacemaker cells, in cardiac contractile cells and in skeletal muscle cells.

- 84) The action potential of non-pacemaker cells is due to the _____.
- A) inward diffusion of Na^+
 - B) inward diffusion of Ca^{2+}
 - C) inward diffusion of K^+
 - D) outward diffusion of K^+

Answer: A

Section: 13.05

Topic: Physiology of cardiac muscle contraction and the electrocardiogram

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K07.02 Contrast the way action potentials are generated in cardiac pacemaker cells, in cardiac contractile cells and in skeletal muscle cells.

- 85) The _____ conducts impulses from the AV node to the bundle branches, which lead to the Purkinje fibers.
- A) AV valve
 - B) ventricular septum
 - C) AV bundle
 - D) SA node

Answer: C

Section: 13.05

Topic: Physiology of cardiac muscle contraction and the electrocardiogram

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K09.01a List the parts of the conduction system of the heart and explain how the system functions.

- 86) Digitalis leads to increased intracellular calcium concentrations. This will create _____ myocardial contractions.
- A) slower
 - B) stronger
 - C) weaker
 - D) None of the choices are correct.

Answer: B

Section: 13.05

Topic: Physiology of cardiac muscle contraction and the electrocardiogram; Clinical applications of the cardiovascular center

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: K07.02 Contrast the way action potentials are generated in cardiac pacemaker cells, in cardiac contractile cells and in skeletal muscle cells.

87) The _____ are the last part of the electrical conducting system of the heart.

- A) SA node
- B) AV bundle
- C) Bundle of His
- D) Purkinje fibers

Answer: D

Section: 13.05

Topic: Physiology of cardiac muscle contraction and the electrocardiogram

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K09.01a List the parts of the conduction system of the heart and explain how the system functions.

88) Ca^{2+} release channels in the sarcoplasmic reticulum of the heart are opened by an increase in Ca^{2+} in the cytoplasm. This is referred to as _____.

- A) calcium-induced fibrillation
- B) calcium-stimulated depolarization
- C) calcium-stimulated calcium release
- D) calcium-induced repolarization

Answer: C

Section: 13.05

Topic: Physiology of cardiac muscle contraction and the electrocardiogram

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K07.01 List the phases of the cardiac muscle action potential and explain the ion movements that occur in each phase.

89) Myocardial cells exhibit a plateau phase instead of quickly repolarizing. This is due to _____.

- A) inward diffusion of calcium through slow Ca^{2+} channels
- B) inward diffusion of sodium through fast Na^+ channels
- C) inward diffusion of potassium through voltage-gated K^+ channels
- D) outward pumping of sodium by the Na^+/K^+ pump

Answer: A

Section: 13.05

Topic: Physiology of cardiac muscle contraction and the electrocardiogram

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: K07.03 Explain the significance of the plateau phase in the action potential of a cardiac contractile cell.

90) The production and conduction of action potentials in the heart produces a recordable tracing of the electrical activity of the heart called a(n) _____.

- A) EMG
- B) depolarization
- C) heart scan
- D) ECG

Answer: D

Section: 13.05

Topic: Physiology of cardiac muscle contraction and the electrocardiogram

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K09.02b In the electrocardiogram (EKG or ECG), relate the waveforms to atrial and ventricular depolarization and repolarization and to the activity of the conduction system.

91) The T wave of the ECG represents atrial repolarization.

Answer: FALSE

Section: 13.05

Topic: Physiology of cardiac muscle contraction and the electrocardiogram

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K09.02b In the electrocardiogram (EKG or ECG), relate the waveforms to atrial and ventricular depolarization and repolarization and to the activity of the conduction system.

92) An ECG lacking a T wave would occur if the sinoatrial node were not functioning.

Answer: FALSE

Section: 13.05

Topic: Physiology of cardiac muscle contraction and the electrocardiogram

Bloom's: 3. Apply

Accessibility: Keyboard Navigation

HAPS Outcome: K09.02b In the electrocardiogram (EKG or ECG), relate the waveforms to atrial and ventricular depolarization and repolarization and to the activity of the conduction system.

93) Medications that are used to treat arrhythmias may use which of the following mechanisms?

- A) Block β -adrenergic receptors.
- B) Block fast Na^+ channels.
- C) Block slow Ca^{2+} channels.
- D) All of the choices are correct.

Answer: D

Section: 13.05

Topic: Physiology of cardiac muscle contraction and the electrocardiogram; Clinical applications of the cardiovascular system

Bloom's: 3. Apply

Accessibility: Keyboard Navigation

HAPS Outcome: K11.03a Discuss the influence of positive and negative chronotropic agents on HR.

94) The P wave of an ECG represents _____.

- A) atrial repolarization
- B) atrial depolarization
- C) ventricular repolarization
- D) ventricular depolarization

Answer: B

Section: 13.05

Topic: Physiology of cardiac muscle contraction and the electrocardiogram

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K09.02b In the electrocardiogram (EKG or ECG), relate the waveforms to atrial and ventricular depolarization and repolarization and to the activity of the conduction system.

95) Ventricular depolarization _____.

- A) occurs prior to atrial depolarization
- B) appears as the T wave on an ECG
- C) appears as the P wave on an ECG
- D) occurs after atrialdepolarization

Answer: D

Section: 13.05

Topic: Physiology of cardiac muscle contraction and the electrocardiogram

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: K09.02b In the electrocardiogram (EKG or ECG), relate the waveforms to atrial and ventricular depolarization and repolarization and to the activity of the conduction system.

96) Bipolar limb lead three uses the _____.

- A) left and right arms
- B) left arm and left leg
- C) right arm and left leg
- D) left arm and right leg

Answer: B

Section: 13.05

Topic: Physiology of cardiac muscle contraction and the electrocardiogram

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K09.02b In the electrocardiogram (EKG or ECG), relate the waveforms to atrial and ventricular depolarization and repolarization and to the activity of the conduction system.

97) The S-T segment of an ECG represents _____.

- A) atrial depolarization
- B) passage of the electrical impulse to the atrioventricular node
- C) ventricular depolarization
- D) the plateau phase of the myocardial action potential

Answer: D

Section: 13.05

Topic: Physiology of cardiac muscle contraction and the electrocardiogram

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K09.02b In the electrocardiogram (EKG or ECG), relate the waveforms to atrial and ventricular depolarization and repolarization and to the activity of the conduction system.

98) Failure of the SA node to depolarize would result in an ECG _____.

- A) lacking a T wave
- B) lacking a QRS complex
- C) lacking a P wave
- D) that is isoelectric

Answer: C

Section: 13.05

Topic: Physiology of cardiac muscle contraction and the electrocardiogram; Clinical applications of the cardiovascular center

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: K09.02b In the electrocardiogram (EKG or ECG), relate the waveforms to atrial and ventricular depolarization and repolarization and to the activity of the conduction system.

99) The pressure of arterial blood is lower than the pressure of venous blood.

Answer: FALSE

Section: 13.06

Topic: Blood pressure, peripheral resistance, and hemodynamics

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: K12.01 Compare and contrast the structure of arteries and veins and arterioles and venules.; K14.01 Define blood flow, blood pressure and peripheral resistance.

100) Which of the following is NOT one of the three coats that comprise the walls of arteries and veins?

A) Tunica superficialis

B) Tunica externa

C) Tunica media

D) Tunica interna

Answer: A

Section: 13.06

Topic: Anatomy and functional roles of blood vessel types

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K12.01 Compare and contrast the structure of arteries and veins and arterioles and venules.

101) Which vessels are most important for controlling resistance to blood flow?

A) Elastic arteries

B) Venules

C) Capillaries

D) Arterioles

Answer: D

Section: 13.06

Topic: Anatomy and functional roles of blood vessel types

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: K12.02a List the types of arteries and veins.; K12.02b Correlate the anatomical structure of each type of blood vessel with its function.

102) All blood vessels are lined with _____.

- A) the tunica externa
- B) smooth muscle
- C) endothelial cells
- D) elastin

Answer: C

Section: 13.06

Topic: Anatomy and functional roles of blood vessel types

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K12.01 Compare and contrast the structure of arteries and veins and arterioles and venules.

103) Which capillaries have wide intercellular pores that serve as a basement membrane over the capillary endothelium for increased filtration?

- A) True
- B) Continuous
- C) Fenestrated
- D) Discontinuous

Answer: C

Section: 13.06

Topic: Anatomy and functional roles of blood vessel types

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K12.04b List types of capillaries and state where in the body each type is found.; K12.04c Correlate the anatomical structure of capillaries with their functions.

104) Within the blood vessels, valves are found in the _____.

- A) arteries
- B) capillaries
- C) arterioles
- D) veins

Answer: D

Section: 13.06

Topic: Anatomy and functional roles of blood vessel types

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K12.01 Compare and contrast the structure of arteries and veins and arterioles and venules.

105) Choose the incorrect statement regarding blood vessels.

- A) Arteries contain more muscle than veins.
- B) Smooth muscle surrounds capillaries.
- C) Valves are found in veins but not arteries.
- D) Discontinuous capillaries create sinusoids.

Answer: B

Section: 13.06

Topic: Anatomy and functional roles of blood vessel types

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K12.01 Compare and contrast the structure of arteries and veins and arterioles and venules.

106) Varicose veins can be caused by _____.

- A) compression of abdominal aorta by a fetus during pregnancy
- B) stiffened venous valves
- C) excessive venous congestion
- D) All of the choices are correct.

Answer: C

Section: 13.06

Topic: Anatomy and functional roles of blood vessel types

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: K16.01 Predict factors or situations affecting the cardiovascular system that could disrupt homeostasis.

107) Hypoxia may stimulate new blood vessel growth.

Answer: TRUE

Section: 13.06

Topic: Anatomy and functional roles of blood vessel types

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: K15.01 Provide specific examples to demonstrate how the cardiovascular system responds to maintain homeostasis in the body.

108) Most of the circulating blood can be found in _____.

- A) veins
- B) capillaries
- C) arterioles
- D) arteries

Answer: A

Section: 13.06

Topic: Anatomy and functional roles of blood vessel types; Venous blood return; Systemic blood circulation

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K12.05 Describe the location and function of the venous reserve.

109) The first anatomical change associated with atherosclerosis is the appearance of _____.

- A) monocytes
- B) blood clots
- C) fatty streaks
- D) fibroblasts

Answer: C

Section: 13.07

Topic: Coronary blood circulation; Clinical applications of the cardiovascular system

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K16.02 Predict the types of problems that would occur in the body if the cardiovascular system could not maintain homeostasis.

110) Ischemic heart disease causes _____ on the ECG.

- A) no P wave
- B) no QRS complex
- C) S-T depression
- D) inverted P waves

Answer: C

Section: 13.07

Topic: Physiology of cardiac muscle contraction and the electrocardiogram; Clinical applications of the cardiovascular system

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K09.02b In the electrocardiogram (EKG or ECG), relate the waveforms to atrial and ventricular depolarization and repolarization and to the activity of the conduction system.

111) The structure of a _____ includes a core of nonpolar triglycerides and cholesterol esters coated by proteins, phospholipids, and some free cholesterol.

- A) lipoprotein
- B) glycoprotein
- C) nucleic acid
- D) prostaglandin

Answer: A

Section: 13.07

Topic: Organic compounds

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: O03.03f Compare and contrast the structure and function of different types of lipoproteins in the body.; K02.01 Describe the overall composition of plasma, including the major types of plasma proteins, their functions and where in the body they are produced.

112) Choose the correct statement regarding atherosclerosis.

- A) It is most likely an inflammatory disease.
- B) Blood C-reactive protein levels are better predictors than LDL cholesterol levels.
- C) Antioxidants may be used to prevent or treat it.
- D) All of the choices are correct.

Answer: D

Section: 13.07

Topic: Clinical applications of the cardiovascular system

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K16.01 Predict factors or situations affecting the cardiovascular system that could disrupt homeostasis.; O03.03f Compare and contrast the structure and function of different types of lipoproteins in the body.

113) Oxidation of low-density lipoproteins causes _____.

- A) fatty streak appearance
- B) increased hepatic uptake of fats
- C) monocyte conversion
- D) increased LDL receptor synthesis

Answer: C

Section: 13.07

Topic: Clinical applications of the cardiovascular system; Organic compounds

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: O03.03f Compare and contrast the structure and function of different types of lipoproteins in the body.; K02.01 Describe the overall composition of plasma, including the major types of plasma proteins, their functions and where in the body they are produced.

114) The possibility of an individual developing ischemic heart disease is _____.

- A) decreased by increasing exercise
- B) unaffected by smoking cessation
- C) decreased by diets containing 50% fat
- D) increased by diets low in saturated fat

Answer: A

Section: 13.07

Topic: Clinical applications of the cardiovascular system

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: K16.02 Predict the types of problems that would occur in the body if the cardiovascular system could not maintain homeostasis.

115) In order to be effective against high cholesterol, statins must _____.

- A) inhibit HMG-coenzyme A reductase
- B) stimulate proconvertin
- C) inhibit streptokinase
- D) All of the choices are correct.

Answer: A

Section: 13.07

Topic: Clinical applications of the cardiovascular system; Metabolism of lipids

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: K16.02 Predict the types of problems that would occur in the body if the cardiovascular system could not maintain homeostasis.; C04.04e With respect to carbohydrates, proteins, lipids, and nucleic acids, discuss physiological and structural roles in the body.

116) Cardiac rates slower than 60 beats per minute indicate tachycardia.

Answer: FALSE

Section: 13.07

Topic: Regulation of cardiac output, stroke volume and heart rate; Clinical applications of the cardiovascular system

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: K11.01c Predict how changes in heart rate (HR) and/or stroke volume (SV) will affect cardiac output.

117) Which type of an AV node block occurs when no atrial waves can pass through the AV node?

- A) First-degree
- B) Second-degree
- C) Third-degree
- D) Fourth-degree

Answer: C

Section: 13.07

Topic: Physiology of cardiac muscle contraction and the electrocardiogram; Clinical applications of the cardiovascular system

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K09.01a List the parts of the conduction system of the heart and explain how the system functions.

118) Which type of an AV node block occurs when the rate of impulse conduction through the AV node exceeds 0.20 second?

- A) First-degree
- B) Second-degree
- C) Third-degree
- D) Fourth-degree

Answer: A

Section: 13.07

Topic: Physiology of cardiac muscle contraction and the electrocardiogram; Clinical applications of the cardiovascular system

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K09.01a List the parts of the conduction system of the heart and explain how the system functions.; K16.02 Predict the types of problems that would occur in the body if the cardiovascular system could not maintain homeostasis.

119) 0.12 to 0.20 second is the duration of the _____ in a normal heart.

- A) diastole
- B) QRS wave
- C) Q-T interval
- D) P-R interval

Answer: D

Section: 13.07

Topic: Physiology of cardiac muscle contraction and the electrocardiogram

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K10.03 Relate the EKG waveforms to the normal mechanical events of the cardiac cycle.

- 120) In a complete AV node block, _____.
- A) no signals pass into the ventricles
 - B) the atria will be paced by the SA node
 - C) the ventricles contract due to the Purkinje fiber pacemaker
 - D) All of the choices are correct.

Answer: D

Section: 13.07

Topic: Physiology of cardiac muscle contraction and the electrocardiogram; Clinical applications of the cardiovascular system

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K09.01c Explain how the cardiac conduction system produces efficient pumping of blood.

- 121) Ventricular fibrillation _____.
- A) occurs when the ventricles contract in a rapid, coordinated manner
 - B) is not life threatening
 - C) often occurs due to circus rhythms
 - D) is induced by defibrillators

Answer: C

Section: 13.07

Topic: Physiology of cardiac muscle contraction and the electrocardiogram; Clinical applications of the cardiovascular system

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: K09.01c Explain how the cardiac conduction system produces efficient pumping of blood.; K16.02 Predict the types of problems that would occur in the body if the cardiovascular system could not maintain homeostasis.

122) Damage to the AV node could cause _____ on an ECG.

- A) the absence of the T wave
- B) multiple Q waves
- C) multiple T waves
- D) multiple P waves

Answer: D

Section: 13.07

Topic: Physiology of cardiac muscle contraction and the electrocardiogram; Clinical applications of the cardiovascular system

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: K09.02b Relate the waveforms to atrial and ventricular depolarization and repolarization and to the activity of the conduction system.; K16.02 Predict the types of problems that would occur in the body if the cardiovascular system could not maintain homeostasis.

123) A continual recycling of electrical waves through the myocardium is called _____.

- A) circus rhythm
- B) atrial flutter
- C) asystole
- D) SA node block

Answer: A

Section: 13.07

Topic: Physiology of cardiac muscle contraction and the electrocardiogram; Clinical applications of the cardiovascular system

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K09.01c Explain how the cardiac conduction system produces efficient pumping of blood.

124) Circus rhythms are NOT caused by _____.

- A) damage to the myocardium
- B) certain cells coming out of the refractory period too quickly
- C) shortened myocardial cells
- D) an electrical shock in the middle of a T wave

Answer: C

Section: 13.07

Topic: Physiology of cardiac muscle contraction and the electrocardiogram; Clinical applications of the cardiovascular system

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: K09.01c Explain how the cardiac conduction system produces efficient pumping of blood.

125) The _____ drains lymph into the left subclavian vein.

- A) left lymphatic duct
- B) common lymphatic duct
- C) thoracic duct
- D) subclavian duct

Answer: C

Section: 13.08

Topic: Anatomy of lymphatic capillaries, vessels, trunks and ducts

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: L02.03 Describe the path of lymph circulation.

126) The lymphatic system can help cancer cells _____ since cancer cells may enter, circulate, and later exit porous lymphatic capillaries.

- A) mutate
- B) revert to normal cells
- C) metastasize
- D) die off

Answer: C

Section: 13.08

Topic: Anatomy of lymphatic capillaries, vessels, trunks and ducts; Clinical applications of the lymphatic system

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: L03.02d Describe the function of the lymph nodes, thymus, spleen, tonsils and other aggregations of mucosae-associated lymphatic tissue (MALT).; L12.02 Predict the types of problems that would occur in the body if the lymphatic and immune systems could not maintain homeostasis.

127) Functions of the lymphatic system include all of the following EXCEPT _____.

- A) transport of interstitial fluid
- B) transport of absorbed fat
- C) providing immunological defense
- D) transport of absorbed peptides

Answer: D

Section: 13.08

Topic: General functions of the lymphatic system and lymph

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: L01.01 Describe the major functions of the lymphatic system.

128) Which of the following is a difference between veins and lymphatic vessels?

- A) Three layers of cells
- B) Valves
- C) Lymph nodes
- D) Peristaltic waves of contraction

Answer: C

Section: 13.08

Topic: Anatomy of lymphatic capillaries, vessels, trunks and ducts

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: L02.01 Compare and contrast whole blood, plasma, interstitial fluid, and lymph.

129) Lymphatic vessels form a complete, closed circuit around the body.

Answer: FALSE

Section: 13.08

Topic: Anatomy of lymphatic capillaries, vessels, trunks and ducts

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: L02.03 Describe the path of lymph circulation.

130) Which of the following is NOT a lymphatic organ?

- A) Tonsils
- B) Lymph nodes
- C) Thymus
- D) Spleen

Answer: B

Section: 13.08

Topic: Anatomy of lymphatic cells, tissues and organs

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: L03.02a Identify and describe the gross anatomical features the lymph nodes, thymus, spleen, tonsils and other aggregations of mucosae-associated lymphatic tissue (MALT).

131) An elite marathon runner would likely benefit from increased oxygen carrying capacity in the blood from the use of _____, which would serve to _____.

- A) hepcidin; increase leukopoiesis
- B) erythropoietin; increase red blood cell formation
- C) granulocyte colony-stimulating factor; erythrocyte production
- D) thrombopoietin; increase megakaryocyte production

Answer: B

Section: 13.02

Topic: Functional roles of formed elements of blood; Clinical applications of the cardiovascular system

Bloom's: 3. Apply

Accessibility: Keyboard Navigation

HAPS Outcome: K03.02b With respect to development of formed elements, explain the basic process of erythropoiesis, the significance of the reticulocyte, and regulation through erythropoietin.

132) Which of the following could explain a gradual decrease in erythropoietin (EPO) levels?

- A) An inactive person beginning an exercise program
- B) A patient with acute kidney disease
- C) An endurance athlete traveling from sea level to the mountains for a month of training
- D) A patient in recovery from surgery with substantial blood loss

Answer: B

Section: 13.02

Topic: Clinical applications of the cardiovascular system; Physiology of hormones and hormone secretion

Bloom's: 4. Analyze

Accessibility: Keyboard Navigation

HAPS Outcome: K03.02b With respect to development of formed elements, explain the basic process of erythropoiesis, the significance of the reticulocyte, and regulation through erythropoietin.

133) A patient demonstrates symptoms of consistent fatigue and lethargy with low blood pressure and elevated heart rate. Which of the following represents a correctly matched disease and cause that might be responsible for his condition?

- A) Thrombocytosis; low dietary intakes of iron
- B) Pernicious anemia; damage to the lining of the stomach
- C) Leukocytosis; acute bacterial infection
- D) Polycythemia; damage to bone marrow

Answer: B

Section: 13.02

Topic: Functional roles of formed elements of blood; Clinical applications of the cardiovascular system

Bloom's: 5. Evaluate

Accessibility: Keyboard Navigation

HAPS Outcome: K03.02b With respect to development of formed elements, explain the basic process of erythropoiesis, the significance of the reticulocyte, and regulation through erythropoietin.

134) The presence of both type-B antibodies and type-B antigens are to agglutination as _____ is to _____.

- A) hemostasis; clotting
- B) vascular damage; hemostasis
- C) fibrin; fibrinogen
- D) coagulation; hemophilia

Answer: B

Section: 13.02

Topic: Hemostasis, including coagulation of blood; ABO and Rh blood grouping

Bloom's: 5. Evaluate

Accessibility: Keyboard Navigation

HAPS Outcome: K15.01 Provide specific examples to demonstrate how the cardiovascular system responds to maintain homeostasis in the body.; K05.02 List the type of antigen and the type of antibodies present in each ABO blood type.; K04.01 Distinguish between the terms hemostasis and coagulation.

135) What does it mean to be a *universal recipient*? A person with the blood type known as the *universal recipient* _____.

- A) has type-O blood, which contains A and B antibodies
- B) lacks the ability to produce antibodies for any donor blood type
- C) has type-AB blood, which contains A and B agglutinins
- D) expresses O agglutinogens along with A and B antibodies

Answer: B

Section: 13.02

Topic: ABO and Rh blood grouping

Bloom's: 4. Analyze

Accessibility: Keyboard Navigation

HAPS Outcome: K05.06 State which blood type is considered the universal donor and which blood type is considered the universal recipient, and explain why.

136) In comparing the pulmonary and systemic circulations, the pulmonary circuit _____.

- A) sends blood to the lungs, is involved with oxygenating blood, and involves the generation of much larger pressures
- B) sends blood to the lungs, is involved with oxygenating blood, and involves much lower overall resistance to flow
- C) sends blood throughout the body, is involved with decreasing blood carbon dioxide levels, and involves much lower overall resistance to flow
- D) sends blood throughout the body, is involved with deoxygenating blood, and involves the generation of smaller pressures

Answer: B

Section: 13.03

Topic: Pulmonary blood circulation; Systemic blood circulation

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: K13.01b State which blood vessel type carries oxygen-rich blood and which type carries oxygen-poor blood in systemic and pulmonary circuits.; K13.01a Describe the systemic and pulmonary circuits and discuss the functions of each.

137) The pulmonary semilunar valve is to the right ventricle as the _____ is to the _____.

- A) mitral valve; pulmonary vein
- B) tricuspid valve; right atrium
- C) aortic valve; aorta
- D) right atrioventricular valve; left ventricle

Answer: B

Section: 13.03

Topic: Gross anatomy of the heart

Bloom's: 5. Evaluate

Accessibility: Keyboard Navigation

HAPS Outcome: K08.02 Describe blood flow through the heart naming all chambers and valves passed.

138) The _____ of the heart are involved with _____.

- A) atria; ejecting blood from the heart
- B) lower chambers; moving blood into major arteries
- C) upper chambers; receiving deoxygenated blood
- D) left side; circulating blood high in carbon dioxide and low in oxygen

Answer: B

Section: 13.03

Topic: Gross anatomy of the heart; Blood flow through the heart

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: K08.02 Describe blood flow through the heart naming all chambers and valves passed.; K06.03 Identify and describe the function of the primary internal structures of the heart, including chambers, septa, valves, papillary muscles, chordae tendineae, and venous and arterial openings.

139) Following musculoskeletal surgery on the lower extremity, oftentimes a return to ambulation (walking) is prescribed as soon as possible to reduce edema. Why?

- A) Promotes the inflammatory response and thus speeds healing
- B) Promotes fluid return via alternating pressures created by muscular contractions
- C) Increases muscular hypertrophy similar as with most exercise
- D) Increases mechanical stimulation to fibroblasts and tissue repair

Answer: B

Section: 13.06

Topic: Venous blood return; Clinical applications of the lymphatic system

Bloom's: 4. Analyze

Accessibility: Keyboard Navigation

HAPS Outcome: K14.08 Discuss how muscular compression and the respiratory pump aid venous return.

140) Development and prevention of atherosclerosis are complicated, multifactorial processes. Which of the following would best represent desired trends in preventing or slowing the onset of atherosclerosis?

- A) Decreased C-reactive protein, increased circulating LDL levels, decreased freed radicals (oxidizing agents)
- B) Decreased foam cell activity, increased statin inhibition of cholesterol synthesis, increased liver LDL receptors
- C) Increased physical activity, smoking cessation, decreased intakes dietary fat including omega-3 fatty acids

Answer: B

Section: 13.07

Topic: Clinical applications of the cardiovascular system

Bloom's: 5. Evaluate

Accessibility: Keyboard Navigation

HAPS Outcome: O03.03f Compare and contrast the structure and function of different types of lipoproteins in the body.

Human Physiology, 15e (Fox)

Chapter 14 Cardiac Output, Blood Flow, and Blood Pressure

1) Cardiac output increases as heart rate increases.

Answer: TRUE

Section: 14.01

Topic: Regulation of cardiac output, stroke volume, and heart rate

Bloom's: 2. Understand; 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K11.01c Predict how changes in heart rate (HR) and/or stroke volume (SV) will affect cardiac output (CO).

2) Under resting conditions, all of the body's blood is pumped through the left ventricle in one minute.

Answer: TRUE

Section: 14.01

Topic: Regulation of cardiac output, stroke volume, and heart rate; Systemic blood circulation

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K11.01a Define cardiac output, and state its units of measurement.

3) If someone's cardiac output is 4.5 liters per minute, their heart rate may be 90 beats per minute, with a stroke volume of 50 ml.

Answer: TRUE

Section: 14.01

Topic: Regulation of cardiac output, stroke volume, and heart rate

Bloom's: 1. Remember; 3. Apply

Accessibility: Keyboard Navigation

HAPS Outcome: K11.01a Define cardiac output, and state its units of measurement.

4) What is the average resting heart rate for an adult?

A) 60 beats/min

B) 70 beats/min

C) 75 beats/min

D) 80 beats/min

Answer: B

Section: 14.01

Topic: Regulation of cardiac output, stroke volume, and heart rate

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K11.01b Define cardiac output, and state its units of measurement.

5) Cardiac output is equal to _____.

- A) stroke volume – cardiac rate
- B) stroke volume / cardiac rate
- C) stroke volume + cardiac rate
- D) stroke volume × cardiac rate

Answer: D

Section: 14.01

Topic: Regulation of cardiac output, stroke volume, and heart rate

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K11.01a Define cardiac output, and state its units of measurement.

6) Norepinephrine is released from _____ neurons, causing heart rate to _____.

- A) parasympathetic; increase
- B) parasympathetic; decrease
- C) sympathetic; increase
- D) sympathetic; decrease

Answer: C

Section: 14.01

Topic: Regulation of cardiac output, stroke volume, and heart rate; Neurotransmitters and their role in synaptic transmission

Bloom's: 2. Understand; 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K09.01d Describe the role of the autonomic nervous system in the regulation of cardiac function related to the conduction system of the heart.; K11.03a Discuss the influence of positive and negative chronotropic agents on HR.

7) Norepinephrine and epinephrine open _____ channels inducing a faster diastolic depolarization.

- A) voltage-gated Ca^{2+}
- B) fast Ca^{2+}
- C) HCN
- D) fast Na^{+}

Answer: C

Section: 14.01

Topic: Physiology of cardiac muscle contraction and the electrocardiogram; Neurotransmitters and their role in synaptic transmission

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K09.01d Describe the role of the autonomic nervous system in the regulation of cardiac function related to the conduction system of the heart.; K11.03a Discuss the influence of positive and negative chronotropic agents on HR.

8) What type of receptors do norepinephrine and epinephrine bind in the heart?

- A) β_1 -adrenergic
- B) α -adrenergic
- C) Muscarinic
- D) Nicotinic

Answer: A

Section: 14.01

Topic: Physiology of cardiac muscle contraction and the electrocardiogram; Neurotransmitters and their role in synaptic transmission

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K09.01d Describe the role of the autonomic nervous system in the regulation of cardiac function related to the conduction system of the heart.; K11.03a Discuss the influence of positive and negative chronotropic agents on HR.

9) What keeps the HCN channels open?

- A) G-proteins
- B) cAMP
- C) ATP
- D) Ca^{2+}

Answer: B

Section: 14.01

Topic: Physiology of cardiac muscle contraction and the electrocardiogram

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K09.01d Describe the role of the autonomic nervous system in the regulation of cardiac function related to the conduction system of the heart.

10) Acetylcholine binds to _____ receptors of the heart and causes the opening of _____ channels.

- A) muscarinic; K^+
- B) nicotinic; K^+
- C) muscarinic; Na^+
- D) nicotinic; Na^+

Answer: A

Section: 14.01

Topic: Physiology of cardiac muscle contraction and the electrocardiogram; Neurotransmitters and their role in synaptic transmission

Bloom's: 2. Understand; 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K09.01d Describe the role of the autonomic nervous system in the regulation of cardiac function related to the conduction system of the heart.

- 11) If acetylcholine binds to its receptors in the heart, there would be _____ in heart rate.
- A) an increase
 - B) a decrease
 - C) no change

Answer: B

Section: 14.01

Topic: Regulation of cardiac output, stroke volume, and heart rate; Neurotransmitters and their role in synaptic transmission

Bloom's: 1. Remember; 3. Apply

Accessibility: Keyboard Navigation

HAPS Outcome: K09.01d Describe the role of the autonomic nervous system in the regulation of cardiac function related to the conduction system of the heart.; K11.03a Discuss the influence of positive and negative chronotropic agents on HR.

- 12) If blood pressure elevated upon measurement, it is an indication that stroke volume must also be increased.

Answer: FALSE

Section: 14.01

Topic: Regulation of cardiac output, stroke volume, and heart rate; Blood pressure, peripheral resistance, and hemodynamics

Bloom's: 2. Understand; 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K14.11a During the baroreceptor reflex, explain how cardiac output and peripheral resistance are regulated to maintain adequate blood pressure on a moment-to-moment basis.

- 13) Imagine a patient with a stiff, non-compliant left ventricle is prescribed a medication that acts as an agonist to norepinephrine. The medication would be effective because _____.
- A) heart rate would increase, compensating for the reduced stroke volume
 - B) heart rate would decrease, reducing the workload on the heart
 - C) blood pressure would increase, moving blood through the circulatory system more rapidly
 - D) cardiac output would increase, forcing the ventricle to become more compliant

Answer: A

Section: 14.01

Topic: Regulation of cardiac output, stroke volume, and heart rate; Neurotransmitters and their role in synaptic transmission

Bloom's: 1. Remember; 4. Analyze

Accessibility: Keyboard Navigation

HAPS Outcome: K11.03a Discuss the influence of positive and negative chronotropic agents on HR.; K11.02d Discuss the influence of positive and negative inotropic agents on stroke volume (SV).

- 14) Sympathetic stimulation of the heart will _____.
- A) increase the rate of depolarization in the ventricles
 - B) increase conduction rate between the SA and AV nodes
 - C) increase the strength of myocardial contraction
 - D) All of the choices are correct.

Answer: D

Section: 14.01

Topic: Physiology of cardiac muscle contraction and the electrocardiogram; Regulation of cardiac output, stroke volume, and heart rate

Bloom's: 2. Understand; 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K09.01d Describe the role of the autonomic nervous system in the regulation of cardiac function related to the conduction system of the heart.

- 15) The cardiac control center of the _____ coordinates the autonomic innervation of the heart.
- A) pons
 - B) cerebrum
 - C) medulla oblongata
 - D) midbrain

Answer: C

Section: 14.01

Topic: Regulation of cardiac output, stroke volume, and heart rate

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K09.01d Describe the role of the autonomic nervous system in the regulation of cardiac function related to the conduction system of the heart.

- 16) The volume of blood in the ventricles at the end of diastole is known as the _____.
- A) after-load
 - B) pre-diastolic volume (PDV)
 - C) stroke volume (SV)
 - D) end-diastolic volume (EDV)

Answer: D

Section: 14.01

Topic: Regulation of cardiac output, stroke volume, and heart rate

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K11.02a Define end diastolic volume (EDV) and end systolic volume (ESV) and calculate stroke volume (SV) given values for EDV and ESV.

- 17) The ejection fraction is _____.
- A) the ratio of stroke volume to end diastolic volume
 - B) the ratio of end diastolic volume to end systolic volume
 - C) increased by parasympathetic agonists
 - D) decreased by sympathetic agonists

Answer: A

Section: 14.01

Topic: Regulation of cardiac output, stroke volume, and heart rate

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K11.02b Define venous return, preload and afterload, and explain the factors that affect them as well as how each of them affects EDV, ESV and SV.

- 18) Stroke volume is affected by all of the following EXCEPT _____.
- A) total peripheral resistance
 - B) emotional stress
 - C) cardiac contractility
 - D) end diastolic volume (EDV)

Answer: B

Section: 14.01

Topic: Regulation of cardiac output, stroke volume, and heart rate

Bloom's: 2. Understand; 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K11.02c Explain the significance of the Frank-Starling Law of the heart.

- 19) According to the Frank-Starling Law of the heart, as contraction strength increases the stroke volume _____.
- A) decreases
 - B) increases
 - C) shows no change

Answer: B

Section: 14.01

Topic: Regulation of cardiac output, stroke volume, and heart rate

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K11.02c Explain the significance of the Frank-Starling Law of the heart.

20) As cardiac muscle is stretched, it contracts less forcibly.

Answer: FALSE

Section: 14.01

Topic: Regulation of cardiac output, stroke volume, and heart rate

Bloom's: 2. Understand; 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K11.02c Explain the significance of the Frank-Starling Law of the heart.

21) Stroke volume is directly proportional to _____.

A) preload

B) contractility

C) total peripheral resistance

D) Both preload and contractility are correct.

Answer: D

Section: 14.01

Topic: Regulation of cardiac output, stroke volume, and heart rate

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K11.02b Define venous return, preload and afterload, and explain the factors that affect them as well as how each of them affects EDV, ESV and SV.

22) Stroke volume is inversely proportional to _____.

A) preload

B) contractility

C) total peripheral resistance

D) Both preload and contractility are correct.

Answer: C

Section: 14.01

Topic: Regulation of cardiac output, stroke volume, and heart rate

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K11.02b Define venous return, preload and afterload, and explain the factors that affect them as well as how each of them affects EDV, ESV and SV.

23) Preload is the amount of blood in the ventricles right before they begin to contract.

Answer: TRUE

Section: 14.01

Topic: Regulation of cardiac output, stroke volume, and heart rate

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K11.02b Define venous return, preload and afterload, and explain the factors that affect them as well as how each of them affects EDV, ESV and SV.

24) In response to increased ventricular filling, _____.

- A) total peripheral resistance increases
- B) sympathetic nerves release norepinephrine
- C) myocardial cells stretch
- D) myocardial contractility in decreases

Answer: C

Section: 14.01

Topic: Regulation of cardiac output, stroke volume, and heart rate

Bloom's: 2. Understand; 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K11.02b Define venous return, preload and afterload, and explain the factors that affect them as well as how each of them affects EDV, ESV and SV.

25) Muscle length has a more pronounced effect on contraction strength in cardiac muscle than in skeletal muscle. This is because cardiac muscle has a greater sensitivity to _____.

- A) depolarization
- B) lactic acid
- C) calcium
- D) parasympathetic antagonists

Answer: C

Section: 14.01

Topic: Physiology of cardiac muscle contraction and the electrocardiogram; Regulation of cardiac output, stroke volume, and heart rate

Bloom's: 2. Understand; 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K11.02b Define venous return, preload and afterload, and explain the factors that affect them as well as how each of them affects EDV, ESV and SV.

26) Cardiac output would be increased by _____.

- A) sympathetic antagonists
- B) parasympathetic agonists
- C) negative inotropic agents
- D) positive chronotropic agents

Answer: D

Section: 14.01

Topic: Regulation of cardiac output, stroke volume, and heart rate; Neurotransmitters and their role in synaptic transmission

Bloom's: 2. Understand; 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K11.03a Discuss the influence of positive and negative chronotropic agents on HR.

27) Venous return is increased by all of the following EXCEPT _____.

- A) exhalation
- B) the skeletal muscle pump
- C) hypertension
- D) sympathetic stimulation of the veins

Answer: A

Section: 14.01

Topic: Venous blood return

Bloom's: 2. Understand; 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K11.02b Define venous return, preload and afterload, and explain the factors that affect them as well as how each of them affects EDV, ESV and SV.

28) The ability to distend with pressure increases is called _____.

- A) chronotropism
- B) oncotism
- C) inotropism
- D) compliance

Answer: D

Section: 14.01

Topic: Anatomy and functional roles of blood vessel types; Venous blood return

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K12.02b Correlate the anatomical structure of each type of blood vessel with its function.

29) Oncotic pressure is the difference between the colloid osmotic pressure of the plasma and the colloid osmotic pressure of tissue fluid.

Answer: TRUE

Section: 14.02

Topic: Capillary exchange; Blood pressure, peripheral resistance, and hemodynamics

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K14.07c Describe how net filtration pressure across the capillary wall determines movement of fluid across the capillary wall.

30) The _____ is equal to the hydrostatic pressure of the blood in the capillaries minus the hydrostatic pressure of tissue interstitial fluid outside the capillaries.

- A) net filtration pressure
- B) blood pressure
- C) osmotic pressure
- D) None of the choices are correct.

Answer: A

Section: 14.02

Topic: Capillary exchange; Blood pressure, peripheral resistance, and hemodynamics

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K14.07c Describe how net filtration pressure across the capillary wall determines movement of fluid across the capillary wall.

31) How much of the total body water is generally found in the blood plasma?

- A) 67%
- B) 33%
- C) 26.3%
- D) 6.7%

Answer: D

Section: 14.02

Topic: Composition of blood plasma; Regulation of water balance

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K02.01 Describe the overall composition of plasma, including the major types of plasma proteins, their functions and where in the body they are produced.

32) Net filtration would be decreased by _____.

- A) liver damage
- B) increased hepatic protein synthesis
- C) hypotension
- D) increased cellular metabolism

Answer: C

Section: 14.02

Topic: Capillary exchange; Blood pressure, peripheral resistance, and hemodynamics; Clinical applications of the cardiovascular system

Bloom's: 2. Understand; 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K14.07c Describe how net filtration pressure across the capillary wall determines movement of fluid across the capillary wall.

33) Edema would be induced by all of the following EXCEPT _____.

- A) hypertension
- B) protein malnutrition
- C) lymphatic blockage
- D) hyperthyroidism

Answer: D

Section: 14.02

Topic: Capillary exchange; Blood pressure, peripheral resistance, and hemodynamics; Clinical applications of the cardiovascular system; General functions of the lymphatic system and lymph

Bloom's: 1. Remember; 3. Apply

Accessibility: Keyboard Navigation

HAPS Outcome: K14.07d Relate net filtration pressure to potential edema and the need for a functional lymphatic system.

34) Elephantiasis is caused by _____.

- A) decreased plasma protein concentration
- B) obstruction of lymphatic drainage
- C) high arterial blood pressure
- D) myxedema

Answer: B

Section: 14.02

Topic: Clinical applications of the lymphatic system; Pathways of lymphatic drainage

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K14.07d Relate net filtration pressure to potential edema and the need for a functional lymphatic system.; K16.02 Predict the types of problems that would occur in the body if the cardiovascular system could not maintain homeostasis.; L12.02 Predict the types of problems that would occur in the body if the lymphatic and immune systems could not maintain homeostasis.

35) The opposing forces that affect fluid movements across a capillary are known as _____.

- A) oncotic pressures
- B) Starling forces
- C) colloid osmotic pressures
- D) None of the choices are correct.

Answer: B

Section: 14.02

Topic: Capillary exchange; Blood pressure, peripheral resistance, and hemodynamics

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K14.07c Describe how net filtration pressure across the capillary wall determines movement of fluid across the capillary wall.; K11.02c Explain the significance of the Frank-Starling Law of the heart.

36) Hydrostatic pressure is _____ and colloid osmotic pressure is _____ at the arterial end of a capillary.

- A) higher; higher
- B) higher; lower
- C) lower; lower
- D) lower; higher

Answer: B

Section: 14.02

Topic: Capillary exchange; Blood pressure, peripheral resistance, and hemodynamics

Bloom's: 2. Understand; 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K14.07c Describe how net filtration pressure across the capillary wall determines movement of fluid across the capillary wall.

37) What is the main force that causes fluids to enter the venous end of a capillary?

- A) Hydrostatic pressure in the capillary
- B) Hydrostatic force in the interstitial fluid
- C) Colloid osmotic pressure in the capillary (blood plasma)
- D) Colloid osmotic pressure in the interstitial fluid

Answer: C

Section: 14.02

Topic: Capillary exchange; Blood pressure, peripheral resistance, and hemodynamics

Bloom's: 2. Understand; 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K14.07c Describe how net filtration pressure across the capillary wall determines movement of fluid across the capillary wall.

38) How much filtrate do the kidneys produce per day?

- A) 10 L
- B) 50 L
- C) 110 L
- D) 180 L

Answer: D

Section: 14.02

Topic: Capillary exchange; Blood pressure, peripheral resistance, and hemodynamics; General functions of the urinary system

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: Q07.01 Provide specific examples to demonstrate how the cardiovascular, endocrine, and urinary systems respond to maintain homeostasis of fluid volume in the body.

39) How much kidney filtrate is reabsorbed back into the vascular system?

- A) 100%
- B) 98–99%
- C) 75–80%
- D) 50–60%

Answer: B

Section: 14.02

Topic: Capillary exchange; Blood pressure, peripheral resistance, and hemodynamics; General functions of the urinary system

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: Q07.01 Provide specific examples to demonstrate how the cardiovascular, endocrine, and urinary systems respond to maintain homeostasis of fluid volume in the body.

40) An increase in blood volume in the left atrium will _____ ADH secretion.

- A) stimulate
- B) inhibit
- C) have no effect on

Answer: B

Section: 14.02

Topic: Blood pressure, peripheral resistance, and hemodynamics; Regulation of water balance; Regulation of urine volume and composition

Bloom's: 2. Understand; 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K14.11d Explain the role of hormones in regulation of blood pressure, including the mechanism by which specific hormones affect preload, heart rate, inotropic state or vascular resistance.

41) Vasopressin induces renal water _____.

- A) secretion
- B) excretion
- C) filtration
- D) reabsorption

Answer: D

Section: 14.02

Topic: Blood pressure, peripheral resistance, and hemodynamics; Regulation of water balance; Regulation of urine volume and composition

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K14.11d Explain the role of hormones in regulation of blood pressure, including the mechanism by which specific hormones affect preload, heart rate, inotropic state or vascular resistance.

42) The steroid hormone secreted by the adrenal cortex, which stimulates salt reabsorption in the kidneys is _____.

- A) ADH
- B) aldosterone
- C) renin
- D) angiotensin

Answer: B

Section: 14.02

Topic: Blood pressure, peripheral resistance, and hemodynamics; Regulation of urine volume and composition; Hormones of other endocrine glands and their functions

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K14.11d Explain the role of hormones in regulation of blood pressure, including the mechanism by which specific hormones affect preload, heart rate, inotropic state or vascular resistance.

43) A patient is diagnosed with a tumor that is causing excessive secretion of renin. Given this, hypertension is an expected result.

Answer: TRUE

Section: 14.02

Topic: Blood pressure, peripheral resistance, and hemodynamics; Clinical applications of the cardiovascular system; Regulation of urine volume and composition

Bloom's: 2. Understand; 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K14.11d Explain the role of hormones in regulation of blood pressure, including the mechanism by which specific hormones affect preload, heart rate, inotropic state or vascular resistance.

44) Angiotensin I is formed from the plasma protein _____ by the action of the enzyme _____.

- A) angiotensin II; renin
- B) angiotensinogen; ACE
- C) angiotensinogen; renin
- D) renin; ACE

Answer: C

Section: 14.02

Topic: Blood pressure, peripheral resistance, and hemodynamics; Regulation of water balance

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K14.11d Explain the role of hormones in regulation of blood pressure, including the mechanism by which specific hormones affect preload, heart rate, inotropic state or vascular resistance.; Q07.01 Provide specific examples to demonstrate how the cardiovascular, endocrine, and urinary systems respond to maintain homeostasis of fluid volume in the body.

- 45) Which of the following is NOT a mechanism by which angiotensin II raises blood pressure?
- A) Stimulating the thirst center in the hypothalamus
 - B) Stimulating production of aldosterone
 - C) Causing vasodilation in arterioles
 - D) Increasing peripheral resistance

Answer: C

Section: 14.02

Topic: Blood pressure, peripheral resistance, and hemodynamics; Regulation of water balance

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K14.11d Explain the role of hormones in regulation of blood pressure, including the mechanism by which specific hormones affect preload, heart rate, inotropic state or vascular resistance.

- 46) Angiotensin-converting enzyme (ACE) inhibitors like captopril block the formation of angiotensin II, thus reducing _____.
- A) vasodilation
 - B) renal reabsorption
 - C) vasoconstriction
 - D) renal excretion

Answer: C

Section: 14.02

Topic: Blood pressure, peripheral resistance, and hemodynamics; Clinical applications of the cardiovascular system

Bloom's: 1. Remember; 3. Apply

Accessibility: Keyboard Navigation

HAPS Outcome: K14.11d Explain the role of hormones in regulation of blood pressure, including the mechanism by which specific hormones affect preload, heart rate, inotropic state or vascular resistance.

47) The hormone atrial natriuretic peptide (ANP) functions antagonistically to _____.

- A) ADH
- B) aldosterone
- C) angiotensin I
- D) glucocorticoids

Answer: B

Section: 14.02

Topic: Blood pressure, peripheral resistance, and hemodynamics; Regulation of water balance

Bloom's: 2. Understand; 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K14.11d Explain the role of hormones in regulation of blood pressure, including the mechanism by which specific hormones affect preload, heart rate, inotropic state or vascular resistance.

48) Blood volume would be increased by _____.

- A) decreased vasopressin secretion
- B) decreased aldosterone secretion
- C) increased renin secretion
- D) increased atrial natriuretic factor secretion

Answer: C

Section: 14.02

Topic: Blood pressure, peripheral resistance, and hemodynamics; Regulation of water balance

Bloom's: 2. Understand; 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K14.11d Explain the role of hormones in regulation of blood pressure, including the mechanism by which specific hormones affect preload, heart rate, inotropic state or vascular resistance.

49) Hypotension could be induced by excessive _____ secretion.

- A) renin
- B) antidiuretic hormone
- C) aldosterone
- D) atrial natriuretic factor

Answer: D

Section: 14.02

Topic: Blood pressure, peripheral resistance, and hemodynamics; Regulation of water balance

Bloom's: 2. Understand; 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K14.11d Explain the role of hormones in regulation of blood pressure, including the mechanism by which specific hormones affect preload, heart rate, inotropic state or vascular resistance.

50) Immersion in water will lead to increased diuresis.

Answer: TRUE

Section: 14.02

Topic: Blood pressure, peripheral resistance, and hemodynamics; Regulation of water balance

Bloom's: 1. Remember; 3. Apply

Accessibility: Keyboard Navigation

HAPS Outcome: K14.11a During the baroreceptor reflex, explain how cardiac output and peripheral resistance are regulated to maintain adequate blood pressure on a moment-to-moment basis.

51) At rest, blood flow is greatest in the _____.

A) skin and GI tract

B) brain and liver

C) GI tract and liver

D) kidneys and skin

Answer: C

Section: 14.03

Topic: Hepatic portal blood circulation; Blood pressure, peripheral resistance, and hemodynamics

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K14.11a During the baroreceptor reflex, explain how cardiac output and peripheral resistance are regulated to maintain adequate blood pressure on a moment-to-moment basis.

52) For blood to flow, there must be a pressure difference in different parts of the vascular system.

Answer: TRUE

Section: 14.03

Topic: Blood pressure, peripheral resistance, and hemodynamics

Bloom's: 2. Understand; 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K12.01 Compare and contrast the structure of arteries and veins and arterioles and venules.; K14.01 Define blood flow, blood pressure, and peripheral resistance.

53) Tripling blood vessel radius would increase blood flow 64-fold.

Answer: FALSE

Section: 14.03

Topic: Blood pressure, peripheral resistance, and hemodynamics

Bloom's: 1. Remember; 3. Apply

Accessibility: Keyboard Navigation

HAPS Outcome: K14.02 State and interpret the equation that relates blood flow to pressure and resistance.

54) A decrease in total peripheral resistance would cause blood flow to _____.

A) increase

B) decrease

C) remain unchanged

Answer: A

Section: 14.03

Topic: Blood pressure, peripheral resistance, and hemodynamics

Bloom's: 2. Understand; 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K14.02 State and interpret the equation that relates blood flow to pressure and resistance.

55) Increased blood flow resistance is caused by _____.

A) increased blood vessel length

B) decreased blood viscosity

C) vasodilation

D) increased blood pressure

Answer: A

Section: 14.03

Topic: Blood pressure, peripheral resistance, and hemodynamics

Bloom's: 2. Understand; 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K14.02 State and interpret the equation that relates blood flow to pressure and resistance.

56) Blood flow is increased by _____.

- A) hypotension
- B) vasodilation
- C) vasoconstriction
- D) edema

Answer: B

Section: 14.03

Topic: Blood pressure, peripheral resistance, and hemodynamics

Bloom's: 2. Understand; 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K14.02 State and interpret the equation that relates blood flow to pressure and resistance.

57) Sympathetic stimulation promotes an overall increase in blood flow resistance.

Answer: TRUE

Section: 14.03

Topic: Blood pressure, peripheral resistance, and hemodynamics; Functions of the autonomic nervous system

Bloom's: 2. Understand; 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K14.11c Explain the role of the sympathetic nervous system in regulation of blood pressure and volume.

58) ADH would be considered a(n) _____ regulator of blood flow.

- A) intrinsic
- B) extrinsic
- C) hormonal
- D) Both extrinsic and hormonal are correct.

Answer: D

Section: 14.03

Topic: Blood pressure, peripheral resistance, and hemodynamics; Regulation of water balance

Bloom's: 2. Understand; 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K14.11d Explain the role of hormones in regulation of blood pressure, including the mechanism by which specific hormones affect preload, heart rate, inotropic state or vascular resistance.

59) Sympathetic stimulation of cholinergic fibers in the arterioles of skeletal muscle will produce _____.

- A) vasoconstriction
- B) vasodilation
- C) no effect

Answer: B

Section: 14.03

Topic: Blood pressure, peripheral resistance, and hemodynamics; Functions of the autonomic nervous system

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K14.11c Explain the role of the sympathetic nervous system in regulation of blood pressure and volume.

60) Blood flow would be increased by _____.

- A) histamines
- B) antihistamines
- C) thromboxane A₂
- D) angiotensin II

Answer: A

Section: 14.03

Topic: Blood pressure, peripheral resistance, and hemodynamics

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K14.11d Explain the role of hormones in regulation of blood pressure, including the mechanism by which specific hormones affect preload, heart rate, inotropic state or vascular resistance.

61) Nitric oxide (NO) causes _____.

- A) vasoconstriction
- B) vasodilation
- C) no effect

Answer: B

Section: 14.03

Topic: Blood pressure, peripheral resistance, and hemodynamics

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K14.10c List some chemicals that cause vasodilation and explain when they are active in relation to autoregulation.

62) Nitroglycerine causes vasodilation of blood vessels due to its effects on levels of _____.

- A) histamine
- B) bradykinin
- C) nitric oxide
- D) prostacyclin

Answer: C

Section: 14.03

Topic: Blood pressure, peripheral resistance, and hemodynamics; Clinical applications of the cardiovascular system

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K14.10c List some chemicals that cause vasodilation and explain when they are active in relation to autoregulation.

63) Endothelin causes _____.

- A) vasoconstriction
- B) vasodilation
- C) no effect

Answer: A

Section: 14.03

Topic: Blood pressure, peripheral resistance, and hemodynamics

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K14.10c List some chemicals that cause vasodilation and explain when they are active in relation to autoregulation.

64) If the concentration of hydrogen ions increased in a particular tissue, you would expect the blood vessels that supply that tissue to constrict, to prevent the ions from entering surrounding tissues.

Answer: FALSE

Section: 14.03

Topic: Systemic blood circulation; Blood pressure, peripheral resistance, and hemodynamics

Bloom's: 1. Remember; 4. Analyze

Accessibility: Keyboard Navigation

HAPS Outcome: K14.10a Explain how autoregulation controls blood flow to individual tissues.

65) Intrinsic regulation of blood flow provides localized control of peripheral resistance.

Answer: TRUE

Section: 14.03

Topic: Blood pressure, peripheral resistance, and hemodynamics

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K14.10a Explain how autoregulation controls blood flow to individual tissues.

66) Vascular smooth muscle can directly respond to changes in pressure. This type of control is called _____.

- A) metabolic
- B) extrinsic
- C) vasogenic
- D) myogenic

Answer: D

Section: 14.03

Topic: Blood pressure, peripheral resistance, and hemodynamics

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K14.10a Explain how autoregulation controls blood flow to individual tissues.

67) Vasodilation is induced by all of the following EXCEPT _____.

- A) increased tissue carbon dioxide
- B) decreased tissue metabolism
- C) decreased tissue oxygen
- D) increased extracellular K^+

Answer: B

Section: 14.03

Topic: Blood pressure, peripheral resistance, and hemodynamics

Bloom's: 2. Understand; 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K14.10c List some chemicals that cause vasodilation and explain when they are active in relation to autoregulation.

68) Reactive hyperemia is _____.

- A) increased blood flow due to increased metabolism
- B) increased blood flow after removal of constriction due to accumulated metabolic products
- C) increased blood flow due to sepsis
- D) All of the choices are correct.

Answer: B

Section: 14.03

Topic: Blood pressure, peripheral resistance, and hemodynamics

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K14.10a Explain how autoregulation controls blood flow to individual tissues.

69) During diastole, blood flow in in the arteries supplying the cardiac muscle tissue decreases.

Answer: FALSE

Section: 14.04

Topic: Coronary blood circulation; Blood pressure, peripheral resistance, and hemodynamics

Bloom's: 2. Understand; 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K14.11a During the baroreceptor reflex, explain how cardiac output and peripheral resistance are regulated to maintain adequate blood pressure on a moment-to-moment basis.

70) What allows cardiac muscle to have sufficient oxygen during systole?

- A) Large amount of myoglobin
- B) Many mitochondria
- C) Many aerobic enzymes
- D) All of the choices are correct.

Answer: D

Section: 14.04

Topic: Coronary blood circulation; Blood pressure, peripheral resistance, and hemodynamics

Bloom's: 2. Understand; 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K06.06 Identify myocardium and describe its histological structure, including the significance of intercalated discs.; K13.02a Trace blood flow through the coronary circulation from the aorta to the right atrium.

71) Coronary bypass surgery is performed _____.

- A) to limit myocardial ischemia
- B) to decrease blood pressure
- C) to correct an aneurysm
- D) to limit blood flow into a damaged coronary artery

Answer: A

Section: 14.04

Topic: Coronary blood circulation; Clinical applications of the cardiovascular system

Bloom's: 1. Remember; 3. Apply

Accessibility: Keyboard Navigation

HAPS Outcome: K16.01 Predict factors or situations affecting the cardiovascular system that could disrupt homeostasis.

72) Which type of muscle has the greatest capillary density?

- A) Skeletal
- B) Smooth
- C) Cardiac

Answer: C

Section: 14.04

Topic: Coronary blood circulation; Identification, location, and comparison of three types of muscle tissue

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K06.06 Identify myocardium and describe its histological structure, including the significance of intercalated discs.

73) During maximal exercise, the skeletal muscles can receive as much as _____ of the total blood flow.

- A) 35%
- B) 45%
- C) 65%
- D) 85%

Answer: D

Section: 14.04

Topic: Systemic blood circulation; Blood pressure, peripheral resistance, and hemodynamics;

Effects of aging and exercise on the muscular system

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K12.03 Describe the role of arterioles in regulating tissue blood flow and systemic arterial blood pressure.

74) Control of blood flow to skeletal muscles during exercise is mainly under _____ control.
A) intrinsic metabolic
B) intrinsic myogenic
C) extrinsic metabolic
D) hormonal

Answer: A

Section: 14.04

Topic: Systemic blood circulation; Blood pressure, peripheral resistance, and hemodynamics; Effects of aging and exercise on the muscular system

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K14.10a Explain how autoregulation controls blood flow to individual tissues.

75) During exercise, all of the following occur EXCEPT _____.
A) increased systolic blood pressure
B) increased cardiac output
C) increased oncotic pressure
D) visceral vasoconstriction

Answer: C

Section: 14.04

Topic: Systemic blood circulation; Blood pressure, peripheral resistance, and hemodynamics

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K14.10a Explain how autoregulation controls blood flow to individual tissues.

76) Cardiovascular changes resulting from moderate exercise include _____.
A) increased total peripheral resistance
B) increased blood flow to the skin
C) increased visceral blood flow
D) decreased stroke volume

Answer: B

Section: 14.04

Topic: Systemic blood circulation; Blood pressure, peripheral resistance, and hemodynamics

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K14.10a Explain how autoregulation controls blood flow to individual tissues.

77) During moderate exercise cerebral blood flow _____.

- A) increases slightly
- B) decreases slightly
- C) remains unchanged
- D) increases significantly

Answer: A

Section: 14.04

Topic: Systemic blood circulation; Blood pressure, peripheral resistance, and hemodynamics

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K14.10a Explain how autoregulation controls blood flow to individual tissues.

78) End-diastolic volume is decreased during exercise because of the increased heart rate, which limits the time for the ventricle to fill.

Answer: FALSE

Section: 14.04

Topic: Regulation of cardiac output, stroke volume, and heart rate; Blood pressure, peripheral resistance, and hemodynamics

Bloom's: 2. Understand; 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K11.02b Define venous return, preload and afterload, and explain the factors that affect them as well as how each of them affects EDV, ESV and SV.

79) Blood flow in the brain changes as blood pressure changes.

Answer: FALSE

Section: 14.05

Topic: Systemic blood circulation; Blood pressure, peripheral resistance, and hemodynamics

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K14.10a Explain how autoregulation controls blood flow to individual tissues.

80) Dizziness during hyperventilation is due to a decrease in cerebral blood flow. The decreased blood flow is caused by _____.

- A) vasodilation
- B) decreased stroke volume
- C) vasoconstriction
- D) decreased respiration

Answer: C

Section: 14.05

Topic: Systemic blood circulation; Blood pressure, peripheral resistance, and hemodynamics

Bloom's: 1. Remember; 3. Apply

Accessibility: Keyboard Navigation

HAPS Outcome: K14.11a During the baroreceptor reflex, explain how cardiac output and peripheral resistance are regulated to maintain adequate blood pressure on a moment-to-moment basis.

81) In response to increased internal temperature, blood flow to the skin will _____.

- A) increase
- B) decrease
- C) remain unchanged

Answer: A

Section: 14.05

Topic: Systemic blood circulation; Blood pressure, peripheral resistance, and hemodynamics

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K15.01 Provide specific examples to demonstrate how the cardiovascular system responds to maintain homeostasis in the body.

82) When the arteriovenous anastomoses are stimulated by sympathetic nerve fibers, the superficial capillary loops are _____.

- A) engorged with blood
- B) collapsed
- C) bypassed
- D) not affected

Answer: A

Section: 14.05

Topic: Blood pressure, peripheral resistance, and hemodynamics

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K12.06 Define anastomosis and explain the significance of anastomoses, such as the Circle of Willis.

83) Sweat glands can also secrete _____, which stimulates vasodilation of skin arterioles to help reduce body temperature.

- A) nitric oxide
- B) prostaglandin E₂
- C) bradykinin
- D) adenosine

Answer: C

Section: 14.05

Topic: Blood pressure, peripheral resistance, and hemodynamics; Functions of accessory skin structures

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K14.10d List some chemicals that cause vasoconstriction and explain when they are active in relation to autoregulation.

84) Arterial blood pressure is influenced by _____.

- A) vasoconstriction in the peripheral arterioles
- B) increased heart rate
- C) increased stroke volume
- D) All of the choices are correct.

Answer: D

Section: 14.06

Topic: Regulation of cardiac output, stroke volume, and heart rate; Blood pressure, peripheral resistance, and hemodynamics

Bloom's: 2. Understand; 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K12.03 Describe the role of arterioles in regulating tissue blood flow and systemic arterial blood pressure.

85) If cardiac output increases, the peripheral resistance must _____ for arterial blood pressure to remain constant.

- A) increase
- B) decrease
- C) no change

Answer: B

Section: 14.06

Topic: Regulation of cardiac output, stroke volume, and heart rate; Blood pressure, peripheral resistance, and hemodynamics

Bloom's: 2. Understand; 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K14.11a During the baroreceptor reflex, explain how cardiac output and peripheral resistance are regulated to maintain adequate blood pressure on a moment-to-moment basis.

86) Which blood vessels have the highest cross-sectional area?

- A) Veins
- B) Arterioles
- C) Venules
- D) Capillaries

Answer: D

Section: 14.06

Topic: Anatomy and functional roles of blood vessel types

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K12.04b Correlate the anatomical structure of capillaries with their functions.

87) Which blood vessels have the lowest pressure?

- A) Veins
- B) Arterioles
- C) Venules
- D) Capillaries

Answer: A

Section: 14.06

Topic: Anatomy and functional roles of blood vessel types; Blood pressure, peripheral resistance, and hemodynamics

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K14.02b Correlate the anatomical structure of veins with their function.

88) The larger the cross-sectional area of a type of vessel, the higher the blood pressure.

Answer: FALSE

Section: 14.06

Topic: Anatomy and functional roles of blood vessel types; Blood pressure, peripheral resistance, and hemodynamics

Bloom's: 2. Understand; 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K12.01 Compare and contrast the structure of arteries and veins and arterioles and venules.

89) Inhibition of the baroreceptor reflex would prevent proper regulation of all but _____.

- A) heart rate
- B) stroke volume
- C) respiratory rate
- D) blood pressure

Answer: C

Section: 14.06

Topic: Blood pressure, peripheral resistance, and hemodynamics; Functions of the autonomic nervous system

Bloom's: 1. Remember; 3. Apply

Accessibility: Keyboard Navigation

HAPS Outcome: K14.11a During the baroreceptor reflex, explain how cardiac output and peripheral resistance are regulated to maintain adequate blood pressure on a moment-to-moment basis.

90) A failure of blood pressure to increase upon standing is known as _____.

- A) postural hypotension
- B) postural bradycardia
- C) postural tachycardia
- D) postural atherosclerosis

Answer: A

Section: 14.06

Topic: Blood pressure, peripheral resistance, and hemodynamics; Clinical applications of the cardiovascular system; Functions of the autonomic nervous system

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K16.02 Predict the types of problems that would occur in the body if the cardiovascular system could not maintain homeostasis.; K14.11a During the baroreceptor reflex, explain how cardiac output and peripheral resistance are regulated to maintain adequate blood pressure on a moment-to-moment basis.

91) Increased blood pressure stimulates _____.

- A) decreased outflow from the baroreceptors
- B) decreased sympathetic outflow to the heart
- C) decreased parasympathetic outflow to the heart
- D) postural hypotension

Answer: B

Section: 14.06

Topic: Blood pressure, peripheral resistance, and hemodynamics; Functions of the autonomic nervous system

Bloom's: 2. Understand; 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K14.11c Explain the role of the sympathetic nervous system in regulation of blood pressure and volume.

92) If the vagus nerve was damaged or absent, you would expect _____.

- A) a decrease in heart rate
- B) a decrease in cardiac output
- C) an increase in blood pressure
- D) an increase in the responsiveness of the baroreceptor reflex

Answer: D

Section: 14.06

Topic: Blood pressure, peripheral resistance, and hemodynamics; Clinical applications of the cardiovascular system; Functions of the autonomic nervous system; Structure and function of cranial nerves

Bloom's: 1. Remember; 4. Analyze

Accessibility: Keyboard Navigation

HAPS Outcome: K14.11c Explain the role of the sympathetic nervous system in regulation of blood pressure and volume.

93) Expanded blood volume stimulates stretch receptors in the atria of the heart, causing increased secretion of _____.

- A) atrial natriuretic peptide
- B) aldosterone
- C) epinephrine
- D) parasympathetic antagonists

Answer: A

Section: 14.06

Topic: Blood pressure, peripheral resistance, and hemodynamics

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K14.11d Explain the role of hormones in regulation of blood pressure, including the mechanism by which specific hormones affect preload, heart rate, inotropic state or vascular resistance.

- 94) If atrial stretch receptors are stimulated, you would NOT expect _____ as a result.
- A) decreased vascular volume
 - B) increased secretion of ANP
 - C) decreased water excretion
 - D) inhibition of ADH

Answer: C

Section: 14.06

Topic: Blood pressure, peripheral resistance, and hemodynamics

Bloom's: 1. Remember; 3. Apply

Accessibility: Keyboard Navigation

HAPS Outcome: K14.11d Explain the role of hormones in regulation of blood pressure, including the mechanism by which specific hormones affect preload, heart rate, inotropic state or vascular resistance.

- 95) The last Korotkoff sound occurs when the blood pressure is equal to _____ pressure.
- A) atmospheric
 - B) systolic
 - C) diastolic
 - D) pulmonary

Answer: C

Section: 14.06

Topic: Blood pressure, peripheral resistance, and hemodynamics

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K10.06 Relate the heart sounds to the events of the cardiac cycle.

- 96) The sounds heard during the first phase of blood-pressure measurement are _____.
- A) murmurs
 - B) snapping sounds
 - C) thumping sounds
 - D) muffled thumping sounds

Answer: B

Section: 14.06

Topic: Blood pressure, peripheral resistance, and hemodynamics

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K10.06 Relate the heart sounds to the events of the cardiac cycle.

97) There is no mixing of blood layers or sounds from vessels during _____ flow.

- A) turbulent
- B) Korotkoff
- C) laminar
- D) restricted

Answer: C

Section: 14.06

Topic: Blood pressure, peripheral resistance, and hemodynamics

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K14.01 Define blood flow, blood pressure, and peripheral resistance.

98) Pulmonary blood pressure is higher than arterial blood pressure because the blood flows a shorter distance.

Answer: FALSE

Section: 14.06

Topic: Pulmonary blood circulation; Coronary blood circulation; Blood pressure, peripheral resistance, and hemodynamics

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K14.05 Using a graph of pressures within the systemic circuit, interpret the pressure changes that occur in the arteries, capillaries, and veins.

99) Pulse pressure is the difference between systolic and diastolic blood pressures.

Answer: TRUE

Section: 14.06

Topic: Blood pressure, peripheral resistance, and hemodynamics

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K14.06 Given values for systolic and diastolic blood pressure, calculate pulse pressure (PP) and mean arterial pressure (MAP).

100) As age increases, the maximum cardiac rate will _____.

- A) increase
- B) decrease
- C) remain unchanged

Answer: B

Section: 14.07

Topic: Regulation of cardiac output, stroke volume, and heart rate; Effects of aging on the cardiovascular system

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K11.01c Predict how changes in heart rate (HR) and/or stroke volume (SV) will affect cardiac output (CO).; K15.01 Provide specific examples to demonstrate how the cardiovascular system responds to maintain homeostasis in the body.

101) The mean arterial pressure of a person with a blood pressure of 128/68 would be _____.

- A) 20
- B) 60
- C) 68
- D) 88

Answer: D

Section: 14.07

Topic: Blood pressure, peripheral resistance, and hemodynamics

Bloom's: 1. Remember; 3. Apply

Accessibility: Keyboard Navigation

HAPS Outcome: K14.06 Given values for systolic and diastolic blood pressure, calculate pulse pressure (PP) and mean arterial pressure (MAP).

102) Hypertension increases afterload, making it more difficult for the ventricles to eject blood.

Answer: TRUE

Section: 14.07

Topic: Regulation of cardiac output, stroke volume, and heart rate; Blood pressure, peripheral resistance, and hemodynamics; Clinical applications of the cardiovascular system

Bloom's: 2. Understand; 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K11.02b Define venous return, preload and afterload, and explain the factors that affect them as well as how each of them affects EDV, ESV and SV.

103) Primary hypertension results as a complication of another disease.

Answer: FALSE

Section: 14.07

Topic: Blood pressure, peripheral resistance, and hemodynamics; Clinical applications of the cardiovascular system

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K16.01 Predict factors or situations affecting the cardiovascular system that could disrupt homeostasis.

104) An effective treatment for hypertension may include beta 1-receptor antagonists as well as diuretics.

Answer: TRUE

Section: 14.07

Topic: Blood pressure, peripheral resistance, and hemodynamics; Clinical applications of the cardiovascular system

Bloom's: 1. Remember; 3. Apply

Accessibility: Keyboard Navigation

HAPS Outcome: K14.11c Explain the role of the sympathetic nervous system in regulation of blood pressure and volume.

105) Essential hypertension may result from _____.

A) a diet high in sodium

B) decreased ADH secretion

C) decreased sympathetic vasoconstriction

D) decreased release of endothelin

Answer: A

Section: 14.07

Topic: Blood pressure, peripheral resistance, and hemodynamics; Clinical applications of the cardiovascular system

Bloom's: 2. Understand; 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K16.01 Predict factors or situations affecting the cardiovascular system that could disrupt homeostasis.

106) A patient is diagnosed with secondary hypertension. This may result from _____.

- A) a renin secreting tumor
- B) an atrial natriuretic factor secreting tumor
- C) an aldosterone antagonist
- D) an epinephrine antagonist

Answer: A

Section: 14.07

Topic: Blood pressure, peripheral resistance, and hemodynamics; Clinical applications of the cardiovascular system

Bloom's: 1. Remember; 3. Apply

Accessibility: Keyboard Navigation

HAPS Outcome: K16.01 Predict factors or situations affecting the cardiovascular system that could disrupt homeostasis.; K14.11d Explain the role of hormones in regulation of blood pressure, including the mechanism by which specific hormones affect preload, heart rate, inotropic state or vascular resistance.

107) Hypertension can be treated by all of the following EXCEPT _____.

- A) ACE inhibitors
- B) calcium channel blockers
- C) diuretics
- D) sympathetic agonists

Answer: D

Section: 14.07

Topic: Blood pressure, peripheral resistance, and hemodynamics; Clinical applications of the cardiovascular system

Bloom's: 1. Remember; 3. Apply

Accessibility: Keyboard Navigation

HAPS Outcome: K16.01 Predict factors or situations affecting the cardiovascular system that could disrupt homeostasis.; K14.11c Explain the role of the sympathetic nervous system in regulation of blood pressure and volume.

- 108) Hypertension may cause _____.
- A) increased afterload
 - B) hypertrophy of the ventricles and valve defects
 - C) broken capillaries in tissues and organs
 - D) All of the choices are correct.

Answer: D

Section: 14.07

Topic: Blood pressure, peripheral resistance, and hemodynamics; Clinical applications of the cardiovascular system

Bloom's: 2. Understand; 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K16.01 Predict factors or situations affecting the cardiovascular system that could disrupt homeostasis.

- 109) A person with a decreased blood pressure, rapid pulse, and cold clammy skin would be suffering from _____.
- A) peripheral edema
 - B) hypovolemic shock
 - C) myocardial ischemia
 - D) atherosclerosis

Answer: B

Section: 14.07

Topic: Blood pressure, peripheral resistance, and hemodynamics; Clinical applications of the cardiovascular system

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K16.02 Predict the types of problems that would occur in the body if the cardiovascular system could not maintain homeostasis.

- 110) Dangerously low blood pressure that results from infection is _____ shock.
- A) septic
 - B) anaphylactic
 - C) neurogenic
 - D) cardiogenic

Answer: A

Section: 14.07

Topic: Blood pressure, peripheral resistance, and hemodynamics; Clinical applications of the cardiovascular system

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K16.02 Predict the types of problems that would occur in the body if the cardiovascular system could not maintain homeostasis.

111) Which is NOT a symptom of preeclampsia?

- A) Hypertension
- B) Proteinuria
- C) Edema
- D) Increased vasodilation

Answer: D

Section: 14.07

Topic: Blood pressure, peripheral resistance, and hemodynamics; Clinical applications of the cardiovascular system; Clinical applications of the reproductive system

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K16.02 Predict the types of problems that would occur in the body if the cardiovascular system could not maintain homeostasis.

112) The type of shock resulting from lipopolysaccharides is termed _____ shock.

- A) hypovolemic
- B) cardiogenic
- C) septic
- D) neurogenic

Answer: C

Section: 14.07

Topic: Blood pressure, peripheral resistance, and hemodynamics; Clinical applications of the cardiovascular system

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K16.02 Predict the types of problems that would occur in the body if the cardiovascular system could not maintain homeostasis.

113) Cardiogenic shock can result from _____.

- A) myocardial infarction
- B) increased cardiac output
- C) increased sympathetic outflow to the heart
- D) parasympathetic antagonists

Answer: A

Section: 14.07

Topic: Blood pressure, peripheral resistance, and hemodynamics; Clinical applications of the cardiovascular system

Bloom's: 2. Understand; 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K16.02 Predict the types of problems that would occur in the body if the cardiovascular system could not maintain homeostasis.

- 114) During congestive heart failure _____.
- A) high blood K^+ causes cardiac arrest in systole
 - B) high blood Ca^{2+} causes cardiac arrest in systole
 - C) blood pools in front of the affected ventricle
 - D) renin secretion is stimulated

Answer: B

Section: 14.07

Topic: Regulation of cardiac output, stroke volume, and heart rate; Clinical applications of the cardiovascular system

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K16.02 Predict the types of problems that would occur in the body if the cardiovascular system could not maintain homeostasis.

- 115) Left side heart failure may be caused by _____.
- A) myocardial infarction
 - B) aortic valve stenosis
 - C) incompetent aortic and mitral valves
 - D) All of the choices are correct.

Answer: D

Section: 14.07

Topic: Regulation of cardiac output, stroke volume, and heart rate; Clinical applications of the cardiovascular system

Bloom's: 2. Understand; 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: K16.02 Predict the types of problems that would occur in the body if the cardiovascular system could not maintain homeostasis.; K08.03 Explain the major factors that aid in movement of blood through the heart and produce one-way flow.

116) After several tests are performed, a patient is diagnosed with left-sided heart failure. Signs and symptoms in her history and testing should include _____.

- A) difficulty breathing
- B) feelings of fatigue upon exertion
- C) decreased cardiac output
- D) All of the choices are correct.

Answer: D

Section: 14.07

Topic: Regulation of cardiac output, stroke volume, and heart rate; Clinical applications of the cardiovascular system

Bloom's: 1. Remember; 4. Analyze

Accessibility: Keyboard Navigation

HAPS Outcome: K16.02 Predict the types of problems that would occur in the body if the cardiovascular system could not maintain homeostasis.; K08.03 Explain the major factors that aid in movement of blood through the heart and produce one-way flow.

117) The ejection fraction for an individual whose stroke volume is 45 ml of blood would be _____. This would _____ meet the body's demand for blood flow.

- A) 60%; adequately
- B) 40%; inadequately
- C) 75%; adequately
- D) 10%; inadequately

Answer: B

Section: 14.01

Topic: Regulation of cardiac output, stroke volume, and heart rate; Clinical applications of the cardiovascular system

Bloom's: 1. Remember; 4. Analyze

Accessibility: Keyboard Navigation

HAPS Outcome: K11.02b Define venous return, preload and afterload, and explain the factors that affect them as well as how each of them affects EDV, ESV and SV.

118) Which of the following accounts for the increased osmolality with prolonged exercise in a hot environment?

- A) The increased production of aldosterone leads to an increase in the blood osmolality.
- B) The osmoreceptors trigger the thirst mechanism, triggering an increase in blood osmolality.
- C) The decreased blood volume due to increased sweating and lack of water intake increase the blood osmolality.
- D) ADH production triggers the increased reabsorption of water in renal tubules trigger the increase in blood osmolality.

Answer: C

Section: 14.02

Topic: Blood pressure, peripheral resistance, and hemodynamics; Clinical applications of the cardiovascular system; Regulation of water balance

Bloom's: 1. Remember; 4. Analyze

Accessibility: Keyboard Navigation

HAPS Outcome: K14.11d Explain the role of hormones in regulation of blood pressure, including the mechanism by which specific hormones affect preload, heart rate, inotropic state or vascular resistance.; Q07.01 Provide specific examples to demonstrate how the cardiovascular, endocrine, and urinary systems respond to maintain homeostasis of fluid volume in the body.; K15.01 Provide specific examples to demonstrate how the cardiovascular system responds to maintain homeostasis in the body.

119) Increased baroreceptor response will lead to which of the following homeostatic responses?

- A) Decreased total peripheral resistance
- B) Increased cardiac rate
- C) Increased ADH and aldosterone release
- D) Decreased acetylcholine release
- E) Increased epinephrine release

Answer: A

Section: 14.06

Topic: Regulation of cardiac output, stroke volume, and heart rate; Blood pressure, peripheral resistance, and hemodynamics; Clinical applications of the cardiovascular system

Bloom's: 1. Remember; 4. Analyze

Accessibility: Keyboard Navigation

HAPS Outcome: K14.11c Explain the role of the sympathetic nervous system in regulation of blood pressure and volume.; K14.11a During the baroreceptor reflex, explain how cardiac output and peripheral resistance are regulated to maintain adequate blood pressure on a moment-to-moment basis.

- 120) Why is pulse pressure a better indicator of cardiovascular health than blood pressure alone?
- A) It takes into account the fact that diastole is longer than systole.
 - B) It accounts for the perfusion of blood to the visceral organs.
 - C) It is a better predictor for essential hypertension in patients.
 - D) It shows the summation of both systolic and diastolic pressures to indicate overall blood volume.

Answer: B

Section: 14.06

Topic: Regulation of cardiac output, stroke volume, and heart rate; Blood pressure, peripheral resistance, and hemodynamics; Clinical applications of the cardiovascular system

Bloom's: 1. Remember; 4. Analyze

Accessibility: Keyboard Navigation

HAPS Outcome: K14.01 Define blood flow, blood pressure, and peripheral resistance.

Human Physiology, 15e (Fox)

Chapter 15 The Immune System

1) Lymphocytes are involved in specific immune reactions.

Answer: TRUE

Section: 15.01

Topic: Lymphocytes and their role in adaptive immunity

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: L04.03 Describe the roles of various types of leukocytes in innate and adaptive body defenses.

2) Which of the following tissues serve as a barrier to microbial infections?

A) Epithelial

B) Muscular

C) Nervous

D) Connective

Answer: A

Section: 15.01

Topic: Nonspecific immunity; Microscopic anatomy, location, and function of epithelial tissue

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: L05.01 Name the surface membrane barriers and describe their physical, chemical, and microbiological mechanisms of defense.

3) Which of the following is a secreted enzyme that destroys bacteria?

- A) Chemotaxin
- B) Complement
- C) Lysozyme
- D) Interferon

Answer: C

Section: 15.01

Topic: Nonspecific immunity

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: L05.01 Name the surface membrane barriers and describe their physical, chemical, and microbiological mechanisms of defense.

4) The two categories of immune defensive mechanisms are _____ and _____.

A) innate (nonspecific) immunity; adaptive (specific) immunity

B) passive immunity; active immunity

C) heavy immunity; light immunity

D) direct immunity; indirect immunity

Answer: A

Section: 15.01

Topic: Nonspecific immunity; Adaptive immunity

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: L04.01 Compare and contrast innate (nonspecific) defenses with adaptive (specific) defenses.

5) How does the immune system recognize a foreign cell?

A) The presence of toll-like receptors.

B) The presence of organ-specific phagocytes.

C) The presence of pathogen-associated molecular patterns.

D) The presence of complement.

Answer: C

Section: 15.01

Topic: Antigens and antigen processing

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: L05.06 Explain the role of pattern-recognition receptors in innate defenses.;
L06.01 Define antigen and antigen receptor.

6) Molecules that are present in the membranes of gram-negative bacteria and are the best known PAMPs are called _____.

- A) interferon
- B) lipopolysaccharides (LPS)
- C) lymphokines
- D) complement

Answer: B

Section: 15.01

Topic: Antigens and antigen processing

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: L05.06 Explain the role of pattern-recognition receptors in innate defenses.

7) What system helps to integrate innate and adaptive immune responses?

- A) PAMPs
- B) Cytokines
- C) Complement
- D) Interferon

Answer: C

Section: 15.01

Topic: Nonspecific immunity; Adaptive immunity

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: L05.05 Explain how complement and interferon function as antimicrobial chemicals.

8) The binding of toll-like receptors on dendritic cells and macrophages to LPS from bacteria stimulates the secretion of _____.

- A) cytokines
- B) complement
- C) PAMPs
- D) peptidoglycans

Answer: A

Section: 15.01

Topic: Nonspecific immunity

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: L05.05 Explain how complement and interferon function as antimicrobial chemicals.; L05.06 Explain the role of pattern-recognition receptors in innate defenses.

9) Neutrophils and monocytes are able to leave the blood and enter tissues via diapedesis.

Answer: TRUE

Section: 15.01

Topic: Nonspecific immunity; Functional roles of formed elements of the blood

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: L05.02 Define diapedesis, chemotaxis, opsonization, and membrane attack complex and explain their importance for innate defenses.

10) Chemotaxis involves the chemical attraction of phagocytes to the site of an infection.

Answer: TRUE

Section: 15.01

Topic: Nonspecific immunity

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: L05.02 Define diapedesis, chemotaxis, opsonization, and membrane attack complex and explain their importance for innate defenses.

11) Inhibition of phagocytosis in macrophages may interfere with the ability of pathogens circulating in the bloodstream to be engulfed and destroyed.

Answer: FALSE

Section: 15.01

Topic: Nonspecific immunity; Functional roles of formed elements of the blood

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: L05.03 Describe the steps involved in phagocytosis and provide examples of important phagocytic cells in the body.

12) Phagocytosis of pathogens would be enhanced if _____.

- A) the number of monocytes in the blood increased
- B) Kupffer cells were destroyed
- C) the number of neutrophils in the blood increased
- D) the number of monocytes or neutrophils in the blood increased

Answer: D

Section: 15.01

Topic: Nonspecific immunity; Functional roles of formed elements of the blood

Bloom's: 3. Apply

Accessibility: Keyboard Navigation

HAPS Outcome: L05.03 Describe the steps involved in phagocytosis and provide examples of important phagocytic cells in the body.

13) Primarily phagocytic cells include all of the following EXCEPT _____.

- A) microglia
- B) Kupffer cells
- C) lymphocytes
- D) macrophages

Answer: C

Section: 15.01

Topic: Nonspecific immunity; Functional roles of formed elements of the blood

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: L05.03 Describe the steps involved in phagocytosis and provide examples of important phagocytic cells in the body.

14) Secretion of _____ would not be expected to result in a fever.

- A) tumor necrosis factor
- B) interleukin-6
- C) interferon
- D) interleukin-1

Answer: C

Section: 15.01

Topic: General functions of the lymphatic system; Nonspecific immunity

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: L05.08a Describe the mechanism of fever and the role of pyrogens.

15) Fevers increase neutrophil activity and interferon production.

Answer: TRUE

Section: 15.01

Topic: Nonspecific immunity

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: L05.08a Describe the mechanism of fever and the role of pyrogens.; L05.08b Explain why fever can be beneficial.

- 16) Interferons _____.
- A) stimulate viral replication
 - B) provide humoral immunity
 - C) provide nonspecific immunity
 - D) are produced by viruses

Answer: C

Section: 15.01

Topic: Nonspecific immunity

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: L05.05 Explain how complement and interferon function as antimicrobial chemicals.

- 17) Alpha and beta interferons will inhibit _____.
- A) growth of cancer cells
 - B) viral replication and assembly
 - C) activity of natural killer cells
 - D) All of the choices are correct.

Answer: B

Section: 15.01

Topic: Nonspecific immunity

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: L05.05 Explain how complement and interferon function as antimicrobial chemicals.

18) Small organic molecules that by themselves are NOT antigenic are called _____.

- A) antibodies
- B) haptens
- C) interferons
- D) complement

Answer: B

Section: 15.01

Topic: Antigens and antigen processing; Organic compounds

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: L07.02 Distinguish among complete antigens, haptens, antigenic determinants and self-antigens.

19) B lymphocytes are directly responsible for cell-mediated immunity.

Answer: FALSE

Section: 15.01

Topic: Lymphocytes and their role in adaptive immunity

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: L06.01 Distinguish between humoral and cell-mediated immunity.

20) Which cell combats most bacterial infections?

A) B lymphocyte

B) T lymphocyte

C) NK cells

D) Monocytes

Answer: A

Section: 15.01

Topic: Lymphocytes and their role in adaptive immunity

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: L08.02d With respect to B cells and T cells, compare and contrast the defense mechanisms and functions.

21) Which cell combats virally infected cells, transplants, and cancer cells?

A) B lymphocyte

B) T lymphocyte

C) NK cells

D) Monocytes

Answer: B

Section: 15.01

Topic: Lymphocytes and their role in adaptive immunity

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: L08.02d With respect to B cells and T cells, compare and contrast the defense mechanisms and functions.

22) Under normal conditions, T lymphocytes in an adult are primarily found in the _____.

- A) thymus
- B) bone marrow
- C) lymph nodes and spleen
- D) blood

Answer: C

Section: 15.01

Topic: Anatomy of lymphatic cells, tissues and organs

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: L03.02d Describe the function of the lymph nodes, thymus, spleen, tonsils and other aggregations of mucosae-associated lymphatic tissue (MALT).

23) Which of the following is NOT a secondary lymphoid organ?

- A) spleen
- B) tonsils
- C) thymus
- D) lymph nodes

Answer: C

Section: 15.01

Topic: Anatomy of lymphatic cells, tissues and organs

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: L03.02a Identify and describe the gross anatomical features the lymph nodes, thymus, spleen, tonsils and other aggregations of mucosae-associated lymphatic tissue (MALT).; L03.02d Describe the function of the lymph nodes, thymus, spleen, tonsils and other

aggregations of mucosae-associated lymphatic tissue (MALT).

24) Phagocytic leukocytes involved in the inflammatory response generally do not reenter system circulation.

Answer: TRUE

Section: 15.01

Topic: Nonspecific immunity; Functional roles of formed elements of the blood

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: L05.07b Summarize the cells and chemicals involved in the inflammatory process.

25) During the local inflammatory response, a lack of mast cells would result in _____.

- A) decreased antibody secretion
- B) interaction of antibodies with the pathogen
- C) activation of complement
- D) decreased capillary permeability

Answer: D

Section: 15.01

Topic: Nonspecific immunity

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: L05.07b Summarize the cells and chemicals involved in the inflammatory process.; L05.07d Explain why inflammation can be beneficial.

26) What is the process of drawing leukocytes to the site of an infection?

- A) Chemotaxis
- B) Diapedesis
- C) Extravasation
- D) Opsonization

Answer: A

Section: 15.01

Topic: Nonspecific immunity

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: L05.02 Define diapedesis, chemotaxis, opsonization, and membrane attack complex and explain their importance for innate defenses.; L05.07b Summarize the cells and chemicals involved in the inflammatory process.

27) Your friend ate some shellfish, and as a result, his face and hands become swollen and red. You recommend he take an antihistamine. This may be effective in alleviating his symptoms because _____.

- A) the medication should cause vasodilation to the tissues, allowing cells of the immune system to remove the foreign antigens
- B) the medication should increase the vascular permeability of the irritated tissue, allowing immune cells to enter the tissue
- C) the medication will help to prevent the escape of fluid and plasma proteins into the extracellular space
- D) the medication will relax the bronchial smooth muscles, allowing him to breathe more freely

Answer: C

Section: 15.01

Topic: Nonspecific immunity; Clinical applications of the lymphatic system

Bloom's: 4. Analyze

Accessibility: Keyboard Navigation

HAPS Outcome: L05.07b Summarize the cells and chemicals involved in the inflammatory process.; L05.07a Describe the mechanisms of inflammation initiation with respect to the inflammatory response.

28) Which leukocytes are the first to arrive at an inflamed site?

- A) T lymphocytes
- B) B lymphocytes
- C) Monocytes
- D) Neutrophils

Answer: D

Section: 15.01

Topic: Nonspecific immunity; Functional roles of formed elements of the blood

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: L05.07b Summarize the cells and chemicals involved in the inflammatory process.; L05.07a Describe the mechanisms of inflammation initiation with respect to the inflammatory response.

29) The ability of antibodies to promote phagocytosis is called _____.

- A) opsonization
- B) chemotaxis
- C) extravasation
- D) complementation

Answer: A

Section: 15.01

Topic: Antibodies and their role in adaptive immunity

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: L09.02 Describe mechanisms of antibody action and correlate mechanisms with effector functions.; L05.02 Define diapedesis, chemotaxis, opsonization, and membrane attack complex and explain their importance for innate defenses.

30) Both innate and adaptive immunity processes are necessary for the local inflammatory response to function properly.

Answer: TRUE

Section: 15.01

Topic: Nonspecific immunity; Adaptive immunity

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: L04.04 Analyze ways in which the innate and adaptive body defenses cooperate to enhance the overall resistance to disease.; L05.07a Describe the mechanisms of inflammation initiation with respect to the inflammatory response.

31) The presence of a foreign antigen in a patient's blood induced the production of antibodies. This demonstrates a competent passive immune response.

Answer: FALSE

Section: 15.02

Topic: Antigens and antigen processing

Bloom's: 3. Apply

Accessibility: Keyboard Navigation

HAPS Outcome: L07.01 Define antigen and antigen receptor.; L10.01 Distinguish between active and passive immunity.

32) In order to produce antibodies, activated B lymphocytes must move into a germinal center of a secondary lymphoid organ.

Answer: FALSE

Section: 15.02

Topic: Lymphocytes and their role in adaptive immunity

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: L08.02b With respect to B cells and T cells, compare and contrast the sites where the cells originate and achieve their immunocompetence, and the primary location of the immunocompetent cells in the body.

33) Choose an effective medication and mechanism of action that would reduce the signs and symptoms of seasonal allergies.

- A) A medication increases the population of mast cells.
- B) A medication that blocks the production of IgM.
- C) A medication that blocks the production of IgE.
- D) A medication that increases the production of serotonin and histamine.

Answer: C

Section: 15.02

Topic: Antibodies and their role in adaptive immunity; Clinical applications of the lymphatic system

Bloom's: 3. Apply

Accessibility: Keyboard Navigation

HAPS Outcome: L09.03 List the five classes of antibodies and discuss structural and functional features that distinguish each class.

34) Mutations in the genes encoding for IgG could _____.

- A) prevent allergic reactions
- B) block the synthesis of the principle form of circulating antibody
- C) prevent antibody secretion in external secretions
- D) prevent lymphocyte stimulation by antigens

Answer: B

Section: 15.02

Topic: Antibodies and their role in adaptive immunity

Bloom's: 3. Apply

Accessibility: Keyboard Navigation

HAPS Outcome: L09.03 List the five classes of antibodies and discuss structural and functional features that distinguish each class.

35) Antibody diversity can be explained by _____.

- A) the fact that many different genes encode for the different antibody chains
- B) antibody-gene recombinations and mutations
- C) mutation of pathogens
- D) clonal production of plasma cells

Answer: B

Section: 15.02

Topic: Antibodies and their role in adaptive immunity

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: L09.03 List the five classes of antibodies and discuss structural and functional features that distinguish each class.

36) Colostrum is high in _____, which helps to confer immunity to an infant during the first year of life.

- A) IgA
- B) IgD
- C) IgE
- D) IgG

Answer: A

Section: 15.02

Topic: Antibodies and their role in adaptive immunity

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: L09.03 List the five classes of antibodies and discuss structural and functional features that distinguish each class.

37) The ability of IgM antibodies to convert of other types of antibodies is called _____.

- A) cloning
- B) antigen-dependent diversification
- C) class switch recombination
- D) somatic hyper mutation

Answer: C

Section: 15.02

Topic: Antibodies and their role in adaptive immunity

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: L09.02 Describe mechanisms of antibody action and correlate mechanisms with effector functions.

38) Immunoglobulins are synthesized and secreted by B lymphocytes.

Answer: TRUE

Section: 15.02

Topic: Antibodies and their role in adaptive immunity

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: L08.2d With respect to B cells and T cells, compare and contrast the defense mechanisms and functions.

39) Inhibiting proteins C2-C4 would block the activation of _____.

- A) interferon
- B) complement
- C) specific immunity
- D) antibodies

Answer: B

Section: 15.02

Topic: Nonspecific immunity

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: L05.05 Explain how complement and interferon function as antimicrobial chemicals.

40) The ability of antibodies and complements to enhance phagocytosis is called _____.

- A) opsonization
- B) complement activation

C) cell-mediated immunity

D) inflammation

Answer: A

Section: 15.02

Topic: Nonspecific immunity

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: L05.02 Define diapedesis, chemotaxis, opsonization, and membrane attack complex and explain their importance for innate defenses.

41) Antibodies _____.

- A) facilitate the phagocytosis of the cell to which the antibody is bound.
- B) facilitate the fixation of complement to the membrane of a pathogenic organism
- C) can be described as "flags" to identify cells that are recognized as "self"
- D) None of the choices are correct.

Answer: B

Section: 15.02

Topic: Antibodies and their role in adaptive immunity

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: L05.05 Explain how complement and interferon function as antimicrobial chemicals.; L09.02 Describe mechanisms of antibody action and correlate mechanisms with effector functions.

42) Complement fragments in a tissue or circulation stimulate all of the following EXCEPT _____.

- A) chemotaxis
- B) opsonization
- C) histamine release
- D) antibody production

Answer: D

Section: 15.02

Topic: Nonspecific immunity

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: L05.05 Explain how complement and interferon function as antimicrobial

chemicals.

43) T lymphocytes _____.

- A) differentiate in the bone marrow
- B) secrete antibodies
- C) mature in the thymus
- D) All of the choices are correct.

Answer: C

Section: 15.03

Topic: Lymphocytes and their role in adaptive immunity

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: L08.02b With respect to B cells and T cells, compare and contrast the sites where the cells originate and achieve their immunocompetence, and the primary location of the immunocompetent cells in the body.

44) What distinguishes cytotoxic T cells from other T lymphocytes?

- A) Their ability to destroy a normal cell that is infected with a pathogen
- B) Their ability to stimulate the production of the T lymphocytes, as well as B lymphocytes
- C) Their role in cell-mediated immunity, rather than humoral immunity
- D) Their site of differentiation

Answer: A

Section: 15.03

Topic: Lymphocytes and their role in adaptive immunity

Bloom's: 4. Analyze

Accessibility: Keyboard Navigation

HAPS Outcome: L08.01 Distinguish among the various types of lymphocytes, including helper T cells, cytotoxic T cells, regulatory (or suppressor) T cells, B cells, plasma cells, and memory cells.

45) Inhibiting the actions of helper T lymphocytes may impair humoral immunity.

Answer: TRUE

Section: 15.03

Topic: Lymphocytes and their role in adaptive immunity

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: L08.02d With respect to B cells and T cells, compare and contrast the defense mechanisms and functions.

46) If interleukin-3 levels increased, an increase in the body's ability to produce histamine would be expected.

Answer: TRUE

Section: 15.03

Topic: Lymphocytes and their role in adaptive immunity

Bloom's: 3. Apply

Accessibility: Keyboard Navigation

HAPS Outcome: L08.02c With respect to B cells and T cells, compare and contrast the mechanisms of antigen challenge and the clonal selection processes, including effector cells, helper cells, memory cells, and important cytokines.

47) Interactions between B cells and helper T cells stimulate the actions of cytotoxic T cells.

Answer: TRUE

Section: 15.03

Topic: Lymphocytes and their role in adaptive immunity

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: L08.02d With respect to B cells and T cells, compare and contrast the defense mechanisms and functions.

48) A patient experiencing septic shock presents with high fever and characteristic hypotension. This fast drop in blood pressure is expected, since widespread secretion of _____ from bacteria causes the innate immune system to trigger _____.

- A) exotoxin; systemic vasodilation
- B) interferon; systemic vasoconstriction
- C) endotoxin; systemic vasodilation
- D) histamine; systemic vasodilation

Answer: C

Section: 15.03

Topic: Nonspecific immunity; Lymphocytes and their role in adaptive immunity; Clinical applications of the lymphatic system

Bloom's: 4. Analyze

Accessibility: Keyboard Navigation

HAPS Outcome: L08.02c With respect to B cells and T cells, compare and contrast the mechanisms of antigen challenge and the clonal selection processes, including effector cells, helper cells, memory cells, and important cytokines.

49) Mutations in polypeptides called _____ that are produced by cytotoxic T cells could prevent T cells from destroying infected cells.

- A) perforins
- B) antibodies
- C) histamines
- D) interferons

Answer: A

Section: 15.03

Topic: Lymphocytes and their role in adaptive immunity

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: L08.02c With respect to B cells and T cells, compare and contrast the mechanisms of antigen challenge and the clonal selection processes, including effector cells, helper cells, memory cells, and important cytokines.

50) Individuals suffering from acquired immune deficiency syndrome have decreased numbers of circulating _____.

- A) regulatory T lymphocytes
- B) helper T lymphocytes
- C) B lymphocytes
- D) macrophages

Answer: B

Section: 15.03

Topic: Lymphocytes and their role in adaptive immunity; Clinical applications of the lymphatic system

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: L12.02 Predict the types of problems that would occur in the body if the lymphatic and immune systems could not maintain homeostasis.

51) What is the function of granzymes?

- A) Polymerize cell membranes to form a large pore
- B) Activate caspases that destroy the cell's DNA
- C) Bind to the plasma membrane of the host cell
- D) Activate complement

Answer: B

Section: 15.03

Topic: Lymphocytes and their role in adaptive immunity

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: L08.02d With respect to B cells and T cells, compare and contrast the defense

mechanisms and functions.

52) Helper T cell activation occurs more readily if the antigen presenting cells are _____.

- A) dendritic cells and macrophages
- B) macrophages and mast cells
- C) B and T lymphocytes
- D) neutrophils and basophils

Answer: A

Section: 15.03

Topic: Antigens and antigen processing; Lymphocytes and their role in adaptive immunity

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: L07.05 Explain the role of antigen-presenting cells (APCs) and provide examples of cells that function as APCs.

53) Blocking the _____ receptor on helper T lymphocytes may inhibit activation by antigen presenting cells.

- A) CD25
- B) CD4
- C) MHC
- D) IL-6

Answer: B

Section: 15.03

Topic: Antigens and antigen processing; Lymphocytes and their role in adaptive immunity

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: L07.05 Explain the role of antigen-presenting cells (APCs) and provide examples of cells that function as APCs.

54) Which molecule is used to produce lymphokine-activated killer cells to treat some types of cancer?

- A) Interleukin-2
- B) Interleukin-1
- C) Interleukin-4
- D) G-CSF

Answer: A

Section: 15.03

Topic: Applied immunology; Clinical applications of the lymphatic system

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: L10.03 Provide examples of how applied immunology can be used to

diagnose, treat and prevent diseases.

55) Bone marrow stem cells and mast cells proliferate in response to _____.

- A) interleukin-1
- B) interleukin-2
- C) interleukin-3
- D) interleukin-4

Answer: C

Section: 15.03

Topic: Lymphocytes and their role in adaptive immunity

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: L08.02c With respect to B cells and T cells, compare and contrast the mechanisms of antigen challenge and the clonal selection processes, including effector cells, helper cells, memory cells, and important cytokines.

56) Inhibition of the actions of cytotoxic T lymphocytes directly causes _____.

- A) decreased antibody secretion
- B) decreased stimulation of B lymphocytes
- C) increased secretion of perforin
- D) None of the choices are correct.

Answer: D

Section: 15.03

Topic: Lymphocytes and their role in adaptive immunity

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: L08.02d With respect to B cells and T cells, compare and contrast the defense mechanisms and functions.

57) The primary target of the human immunodeficiency virus is the _____.

- A) plasma cell
- B) memory cell
- C) macrophage
- D) helper T lymphocyte

Answer: D

Section: 15.03

Topic: Clinical applications of the lymphatic system

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: L12.01 Predict factors or situations affecting the lymphatic and immune systems that could disrupt homeostasis.

58) The activation of resting T lymphocytes is prevented by _____.

- A) inhibiting interleukin-1 secretion by macrophages
- B) inhibiting interleukin-4 by helper T-lymphocytes
- C) stimulating secretion of interferons by T-lymphocytes
- D) decreasing the secretion of tumor necrosis factors by macrophages

Answer: A

Section: 15.03

Topic: Lymphocytes and their role in adaptive immunity

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: L04.04 Analyze ways in which the innate and adaptive body defenses cooperate to enhance the overall resistance to disease.; L08.02a With respect to B cells and T cells, define immunocompetence and self tolerance and distinguish between naive and activated immune cells.

59) A mutation in the gene encoding for interleukin-3 would result in _____.

- A) decreased conversion of B cells to plasma cells
- B) decreased numbers of circulating mast cells
- C) inhibition of macrophage activation
- D) inhibition of leukocyte proliferation

Answer: B

Section: 15.03

Topic: Lymphocytes and their role in adaptive immunity

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: L08.02c With respect to B cells and T cells, compare and contrast the mechanisms of antigen challenge and the clonal selection processes, including effector cells, helper cells, memory cells, and important cytokines.

60) Tissue transplants should have matching _____ to prevent rejection in the host.

- A) MHC molecules
- B) blood types
- C) interleukins
- D) All of the choices are correct.

Answer: A

Section: 15.03

Topic: Antigens and antigen processing; Clinical applications of the lymphatic system

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: L07.03c Explain the function of class I and class II major histocompatibility complex (MHC) in adaptive immunity.

61) Antigen-presenting cells are necessary for _____ response to a foreign antigen.

A) T lymphocyte

B) B lymphocyte

C) antibody

D) macrophage

Answer: A

Section: 15.03

Topic: Antigens and antigen processing

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: L07.05 Explain the role of antigen-presenting cells (APCs) and provide examples of cells that function as APCs.

62) All human cells have both class-1 and class-2 MHC molecules on their membrane surface.

Answer: FALSE

Section: 15.03

Topic: Antigens and antigen processing

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: L07.03b Describe where class I and class II MHC and MHC proteins are found.

63) T cells have receptors for antigens and will bind to free antigens in the same manner as B cells.

Answer: FALSE

Section: 15.03

Topic: Antigens and antigen processing; Lymphocytes and their role in adaptive immunity

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: L07.01 Define antigen and antigen receptor.; L08.02c With respect to B cells and T cells, compare and contrast the mechanisms of antigen challenge and the clonal selection processes, including effector cells, helper cells, memory cells, and important cytokines.

64) Which chromosome contains the genes for the major histocompatibility complex?

A) Chromosome 3

B) Chromosome 6

C) Chromosome 14

D) Chromosome 19

Answer: B

Section: 15.03

Topic: Antigens and antigen processing

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: L07.03b Describe where class I and class II major histocompatibility complex (MHC) and MHC proteins are found.

65) If class-2 MHC molecules were found on _____, donations of this tissue would drastically decrease.

- A) liver cells
- B) red blood cells
- C) bone marrow
- D) kidneys

Answer: B

Section: 15.03

Topic: Antigens and antigen processing; Clinical applications of the lymphatic system

Bloom's: 3. Apply

Accessibility: Keyboard Navigation

HAPS Outcome: L07.03b Describe where class I and class II major histocompatibility complex (MHC) and MHC proteins are found.

66) A class-2 MHC molecule is used to present a foreign antigen to _____.

- A) cytotoxic T cells
- B) B lymphocyte
- C) helper T cells
- D) regulatory T cells

Answer: C

Section: 15.03

Topic: Antigens and antigen processing

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: L07.03c Explain the function of class I and class II major histocompatibility complex (MHC) in adaptive immunity.

67) Presentation of a foreign antigen to a cytotoxic T cell requires a _____.

- A) Class-1 MHC molecule and coreceptor CD8
- B) Class-1 MHC molecule and coreceptor CD4
- C) Class-2 MHC molecule and coreceptor CD8
- D) Class-2 MHC molecule and coreceptor CD4

Answer: A

Section: 15.03

Topic: Antigens and antigen processing; Lymphocytes and their role in adaptive immunity

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: L07.03c Explain the function of class I and class II major histocompatibility complex (MHC) in adaptive immunity.

68) A deficiency or absence of helper T cells interact would decrease the immune response to antigens presented with class-2 MHC molecules.

Answer: TRUE

Section: 15.03

Topic: Antigens and antigen processing; Lymphocytes and their role in adaptive immunity

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: L07.03c Explain the function of class I and class II major histocompatibility complex (MHC) in adaptive immunity.

69) The binding of FAS and its FAS ligand will trigger _____.

- A) interferon release
- B) T lymphocyte activation
- C) antibody production
- D) T lymphocyte apoptosis

Answer: D

Section: 15.03

Topic: Lymphocytes and their role in adaptive immunity

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: L07.03c Explain the function of class I and class II major histocompatibility complex (MHC) in adaptive immunity.

70) Some tumor cells may produce _____, which defends them from T cell attack.

- A) FAS ligands
- B) MHCs that match the tissue of origin

C) CD8 coreceptors

D) antibodies

Answer: A

Section: 15.03

Topic: Antigens and antigen processing; Lymphocytes and their role in adaptive immunity

Bloom's: 3. Apply

Accessibility: Keyboard Navigation

HAPS Outcome: L07.03b Describe where class I and class II major histocompatibility complex (MHC) and MHC proteins are found.

71) Cells infected by viruses present the viral antigens on _____ to T cells.

- A) class-2 MHC molecules
- B) CD4 coreceptors
- C) class-1 MHC molecules
- D) CD8 coreceptors

Answer: C

Section: 15.03

Topic: Antigens and antigen processing

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: L07.03c Explain the function of class I and class II major histocompatibility complex (MHC) in adaptive immunity.

72) Blocking the CD8 coreceptor would cause _____.

- A) increased activation of macrophages
- B) decreased activation of helper T cells
- C) decreased activation of cytotoxic T cells
- D) decreased activation of the target cells

Answer: C

Section: 15.03

Topic: Antigens and antigen processing; Lymphocytes and their role in adaptive immunity

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: L07.03b Describe where class I and class II major histocompatibility complex (MHC) and MHC proteins are found.; L08.02c With respect to B cells and T cells, compare and contrast the mechanisms of antigen challenge and the clonal selection processes, including

effector cells, helper cells, memory cells, and important cytokines.

73) Immunological memory is responsible for the rapid response to an antigen upon the second exposure.

Answer: TRUE

Section: 15.04

Topic: Adaptive immunity

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: L06.02 Describe the immunological memory (anamnestic) response.

74) The _____ immune response occurs faster, is stronger, and lasts longer than the _____ immune response.

- A) secondary; primary
- B) secondary; tertiary
- C) tertiary; primary
- D) primary; secondary

Answer: A

Section: 15.04

Topic: Adaptive immunity

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: L06.02 Describe the immunological memory (anamnestic) response.; L09.04 Interpret a graph of the primary and secondary immune response, in terms of the relative concentrations of different classes of antibodies produced over time.

75) Artificially gaining active immunity through _____ provides exposure to nonvirulent pathogens or nonpathogenic antigens.

- A) allergy
- B) delayed-hypersensitivity
- C) vaccination
- D) auto-immunity

Answer: C

Section: 15.04

Topic: Adaptive immunity; Applied immunology

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: L10.02 Describe natural and artificial examples of both active and passive immunity.

76) The clonal selection of B lymphocytes _____.

- A) occurs due to the previous response of an individual to an antigen
- B) results in the development of plasma and memory cells
- C) results in an attenuated response the second time an individual is exposed to the antigen
- D) All of the choices are correct.

Answer: B

Section: 15.04

Topic: Lymphocytes and their role in adaptive immunity

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: L08.02c With respect to B cells and T cells, compare and contrast the mechanisms of antigen challenge and the clonal selection processes, including effector cells, helper cells, memory cells, and important cytokines.; L10.02 Describe natural and artificial examples of both active and passive immunity.

77) Which of the following would NOT be an effective method of producing a vaccine?

- A) Use live, attenuated viruses
- B) Use killed, virulent viruses
- C) Use cloned antibodies
- D) Use recombinant viral proteins

Answer: C

Section: 15.04

Topic: Applied immunology

Bloom's: 5. Evaluate

Accessibility: Keyboard Navigation

HAPS Outcome: L10.02 Describe natural and artificial examples of both active and passive immunity.

78) Molecules included with immunizations that boost immune response by increasing antigen-presenting ability are called _____.

- A) clones
- B) FAS ligands
- C) interleukin-1
- D) adjuvants

Answer: D

Section: 15.04

Topic: Applied immunology

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: L10.02 Describe natural and artificial examples of both active and passive immunity.

79) You are diagnosed with the autoimmune disease Systemic Lupus Erythematosus, causing your immune system to produce antibodies against specific tissues in your body. This best represents a failure of _____.

- A) central tolerance, because lymphocytes that recognize self antigens are not being activated
- B) clonal-deletion, because lymphocytes that recognize self antigens are not being destroyed
- C) clonal-anergy, because lymphocytes that recognize self antigens are not being activated
- D) innate immunity

Answer: B

Section: 15.04; 15.06

Topic: Adaptive immunity; Antigens and antigen processing; Clinical applications of the lymphatic system

Bloom's: 3. Apply

Accessibility: Keyboard Navigation

HAPS Outcome: L08.03 With respect to B cells and T cells, describe the contribution of clonal deletion to immunity.

80) Once a B lymphocyte has been activated to an antigen, it travels to a secondary lymphoid organ and forms a _____ where cloning occurs.

A) MHC molecule

B) FAS

C) CD4

D) germinal center

Answer: D

Section: 15.04

Topic: Anatomy of lymphatic cells, tissues and organs; Lymphocytes and their role in adaptive immunity

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: L08.02b With respect to B cells and T cells, compare and contrast the sites where the cells originate and achieve their immunocompetence, and the primary location of the immunocompetent cells in the body.

81) The process in which lymphocytes that recognize self-antigens are prevented from being activated is _____.

A) clonal anergy

- B) clonal deletion
- C) clonal selection
- D) apoptosis

Answer: A

Section: 15.04

Topic: Lymphocytes and their role in adaptive immunity

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: L08.02a With respect to B cells and T cells, define immunocompetence and self tolerance and distinguish between naive and activated immune cells.

82) Colostrum provides infants with _____ immunity.

- A) active
- B) innate
- C) passive
- D) direct

Answer: C

Section: 15.04

Topic: Adaptive immunity

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: L10.02 Describe natural and artificial examples of both active and passive immunity.

83) What is the ability to mount a specific immune response called?

- A) Self-tolerance
- B) Complement activation
- C) Immunological competence
- D) Clonal-selection

Answer: C

Section: 15.04

Topic: Adaptive immunity

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: L08.02a With respect to B cells and T cells, define immunocompetence and self tolerance and distinguish between naive and activated immune cells.; L08.02a Define immunocompetence and self tolerance and distinguish between naive and activated immune cells in B cells and T cells.

84) Immunological competence develops _____.

- A) during gestation
- B) at the onset of puberty
- C) at birth
- D) shortly after birth

Answer: D

Section: 15.04

Topic: Adaptive immunity

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: L08.02a With respect to B cells and T cells, define immunocompetence and self tolerance and distinguish between naive and activated immune cells.; L08.02a Define

immunocompetence and self tolerance and distinguish between naive and activated immune cells in B cells and T cells.

85) What type of cell can destroy cancer cells without prior stimulation by tumor antigens?

- A) Cytotoxic T cells
- B) Natural killer cells
- C) B lymphocytes
- D) Regulatory T cells

Answer: B

Section: 15.05

Topic: Nonspecific immunity

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: L05.04 Describe natural killer cells and discuss their function.

86) What substance released by NK cells and cytotoxic T cells destroys the DNA of an infected cell?

- A) Perforin
- B) Interleukin-1
- C) Interferon
- D) Granzyme

Answer: D

Section: 15.05

Topic: Nonspecific immunity; Applied immunology

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: L08.02d With respect to B cells and T cells, compare and contrast the defense mechanisms and functions.; L05.04 Describe natural killer cells and discuss their function.; L10.03 Provide examples of how applied immunology can be used to diagnose, treat and prevent diseases.

87) Which of the following may explain why self-tolerance may fail?

- A) A noncirculating antigen becomes exposed to the immune system.
- B) Antibodies directed against other antibodies are produced.
- C) Antibodies produced against foreign antigens cross-react with self-antigens.
- D) All of the choices are correct.

Answer: D

Section: 15.06

Topic: Antibodies and their role in adaptive immunity

Bloom's: 4. Analyze

Accessibility: Keyboard Navigation

HAPS Outcome: L08.02a With respect to B cells and T cells, define immunocompetence and self tolerance and distinguish between naive and activated immune cells.; L12.02 Predict the types of problems that would occur in the body if the lymphatic and immune systems could not maintain homeostasis.

88) Autoimmune diseases include _____.

- A) type-1 diabetes mellitus
- B) pernicious anemia
- C) aspermatogenesis
- D) All of the choices are correct.

Answer: D

Section: 15.06

Topic: Clinical applications of the lymphatic system

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: L12.02 Predict the types of problems that would occur in the body if the lymphatic and immune systems could not maintain homeostasis.

89) Which of the following is NOT an autoimmune disease?

- A) Hashimoto's thyroiditis
- B) Multiple sclerosis
- C) Atopic dermatitis
- D) Glomerulonephritis

Answer: C

Section: 15.06

Topic: Clinical applications of the lymphatic system

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: L12.02 Predict the types of problems that would occur in the body if the lymphatic and immune systems could not maintain homeostasis.

90) Immune complex diseases are the result of widespread and continuous _____.

- A) inflammation
- B) fever
- C) auto-antibody production
- D) All of the choices are correct.

Answer: A

Section: 15.06

Topic: Clinical applications of the lymphatic system

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: L12.02 Predict the types of problems that would occur in the body if the lymphatic and immune systems could not maintain homeostasis.

91) Delayed hypersensitivity is most often treated with antihistamines.

Answer: FALSE

Section: 15.06

Topic: Applied immunology; Clinical applications of the lymphatic system

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: L12.02 Predict the types of problems that would occur in the body if the lymphatic and immune systems could not maintain homeostasis.

92) Which of the following is involved with delayed hypersensitivity?

- A) Contact dermatitis
- B) IgE secretion
- C) Hay fever
- D) All of the choices are correct.

Answer: A

Section: 15.06

Topic: Clinical applications of the lymphatic system

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: L12.02 Predict the types of problems that would occur in the body if the lymphatic and immune systems could not maintain homeostasis.

93) The difficulty breathing in asthma can be explained by the release of _____.

- A) nitric oxide
- B) leukotrienes
- C) antihistamine
- D) All of the choices are correct.

Answer: B

Section: 15.06

Topic: Clinical applications of the lymphatic system

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: L12.01 Predict factors or situations affecting the lymphatic and immune systems that could disrupt homeostasis.

94) Immediate hypersensitivity is mediated by _____, while delayed hypersensitivity is mediated by _____.

- A) T lymphocytes; antibodies
- B) histamine; leukotrienes
- C) antibodies; T lymphocytes
- D) histamine; haptens

Answer: C

Section: 15.06

Topic: Clinical applications of the lymphatic system

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: L08.02d With respect to B cells and T cells, compare and contrast the defense mechanisms and functions.; L12.02 Predict the types of problems that would occur in the body if the lymphatic and immune systems could not maintain homeostasis.

95) Active immunity can be acquired in a number of ways. Which scenario exhibits how active immunity is acquired?

- A) A person experiences a viral infection.
- B) An immunocompetent person receives a blood transfusion to receive donor immunoglobulins.
- C) A fetus is exposed to antigens in the mother's bloodstream, and develops immunoglobulins.
- D) A mother passes antibodies on to her baby through breast milk.

Answer: A

Section: 15.04

Topic: Adaptive immunity; Applied immunology

Bloom's: 4. Analyze

Accessibility: Keyboard Navigation

HAPS Outcome: L10.01 Distinguish between active and passive immunity.; L10.02 Describe natural and artificial examples of both active and passive immunity.; L08.02c In relation to B cells and T cells, compare and contrast the mechanisms of antigen challenge and the clonal selection processes, including effector cells, helper cells, memory cells, and important cytokines.

96) A patient is born with several autoimmune diseases and severe allergies. This patient most likely has a deficiency of _____.

- A) cytotoxic T cells
- B) regulatory T cells
- C) plasma cells
- D) helper T cells

Answer: B

Section: 15.03

Topic: Lymphocytes and their role in adaptive immunity; Applied immunology; Clinical applications of the lymphatic system

Bloom's: 3. Apply

Accessibility: Keyboard Navigation

HAPS Outcome: L12.01 Predict factors or situations affecting the lymphatic and immune systems that could disrupt homeostasis.; L08.01 Distinguish among the various types of lymphocytes, including helper T cells, cytotoxic T cells, regulatory (or suppressor) T cells, B cells, plasma cells, and memory cells.; L08.02b In relation to B cells and T cells, compare and contrast the sites where the cells originate and achieve their immunocompetence, and the primary location of the immunocompetent cells in the body.

97) Select the statement that correctly describes the differences between specific and nonspecific immunity.

- A) Specific immunity is provided by epithelial tissues.
- B) Nonspecific immunity is innate and genetically determined.
- C) Only cells and tissues of both types of immunity express receptors for specific pathogens.
- D) Nonspecific immunity relies on proper functioning of specific immunity for activation and recognition of pathogens.

Answer: B

Section: 15.01

Topic: Nonspecific immunity; Lymphocytes and their role in adaptive immunity

Bloom's: 3. Apply

Accessibility: Keyboard Navigation

HAPS Outcome: L04.04 Analyze ways in which the innate and adaptive body defenses cooperate to enhance the overall resistance to disease.; L04.02 Define immunity and the immune system.

98) The human immunodeficiency virus (HIV) is able to cause widespread immunodeficiency because _____.

- A) the HIV virus infiltrates the cells responsible for innate immunity, the first line of defense against pathogens
- B) the HIV virus blocks the activation of the complement system
- C) through infection of T cells, HIV prevents the production of antibodies against the virus
- D) the HIV virus interferes with activation of both B cells and T cells

Answer: D

Section: 15.03

Topic: Adaptive immunity; Clinical applications of the lymphatic system

Bloom's: 4. Analyze

Accessibility: Keyboard Navigation

HAPS Outcome: L12.02 Predict the types of problems that would occur in the body if the lymphatic and immune systems could not maintain homeostasis.; L11.01 Provide specific examples to demonstrate how the lymphatic and immune systems respond to maintain homeostasis in the body.

Human Physiology, 15e (Fox)
Chapter 16 Respiratory Physiology

- 1) The events listed below are all components of respiration EXCEPT _____.
- A) gas exchange
 - B) oxygen utilization
 - C) speech
 - D) ventilation

Answer: C

Section: 16.01

Topic: General functions of the respiratory system

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: M02.02 Describe and distinguish between the conducting and respiratory zones of the respiratory tract.

- 2) Internal respiration occurs in the respiratory zone.

Answer: FALSE

Section: 16.01

Topic: Microscopic anatomy of the respiratory tract

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: M02.02 Describe and distinguish between the conducting and respiratory zones of the respiratory tract.

- 3) Type I alveolar cells secrete pulmonary surfactant.

Answer: FALSE

Section: 16.01

Topic: Gross anatomy of the upper respiratory tract

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: M02.06c State the function of each structure.

- 4) The "Adam's apple" is formed by the largest cartilage of the larynx.

Answer: TRUE

Section: 16.01

Topic: Gross anatomy of the upper respiratory tract

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: M02.04b Describe the gross anatomical features of each structure.

- 5) The conducting zone contains all of the following EXCEPT the _____.
- A) primary bronchi
 - B) larynx
 - C) terminal bronchioles
 - D) respiratory bronchioles

Answer: D

Section: 16.01

Topic: Gross anatomy of the upper respiratory tract; Gross anatomy of the lower respiratory tract

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: M02.02 Describe and distinguish between the conducting and respiratory zones of the respiratory tract.

- 6) Diffusion rate across the respiratory membrane is rapid because _____.
- A) there are about 750 square feet of alveoli membrane
 - B) alveoli are one cell thick
 - C) the air-blood barrier is two cells thick
 - D) All of the choices are correct.

Answer: D

Section: 16.01

Topic: Mechanisms of gas exchange in the lungs and tissues

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: M02.06b Describe the microscopic anatomy of each structure

- 7) A pulmonologist is examining a patient who has been smoking cigarettes for several years. The patient's history includes frequent upper and lower respiratory tract infections. What explains the patient's history?
- A) Gas exchange is diminished by cigarette smoking, which increases the susceptibility to infection.
 - B) Smoking increases ciliary movement of mucus in the airways, causing pulmonary congestion.
 - C) Smoking suppresses the innate defenses in the conducting zone of the respiratory system.
 - D) Macrophage activity is increased by cigarette smoking, causing inflammation.

Answer: C

Section: 16.01

Topic: General functions of the respiratory system

Bloom's: 5. Evaluate

Accessibility: Keyboard Navigation

HAPS Outcome: M01.02 Describe the four respiratory processes - ventilation, external respiration (gas exchange at lung), internal respiration (gas exchange at body tissues), and cellular respiration.; M02.02 Describe and distinguish between the conducting and respiratory zones of the respiratory tract.

8) Pleural membranes envelop organs within the thoracic cavity.

Answer: TRUE

Section: 16.01

Topic: Gross anatomy of the lungs

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: M02.04a Identify each structure.

9) The _____ separates the abdominal and thoracic cavities.

A) lungs

B) liver

C) rib cage

D) diaphragm

Answer: D

Section: 16.01

Topic: Gross anatomy of the lungs

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: M02.04a Identify each structure.

10) The parietal pleura covers the surface of the lungs.

Answer: FALSE

Section: 16.01

Topic: Gross anatomy of the lungs

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: M02.04a Identify each structure.

11) Intrapulmonary pressure increases as the diaphragm contracts.

Answer: FALSE

Section: 16.02

Topic: Mechanisms of pulmonary ventilation

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: M03.03 Define and state relative values for atmospheric pressure, intrapulmonary pressure, intrapleural pressure, and transpulmonary pressure.

12) Intrapleural pressure _____ during expiration.

- A) increases
- B) decreases
- C) remains unchanged

Answer: A

Section: 16.02

Topic: Mechanisms of pulmonary ventilation

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: M03.03 Define and state relative values for atmospheric pressure, intrapulmonary pressure, intrapleural pressure, and transpulmonary pressure.

13) During inspiration, _____.

- A) alveolar pressure exceeds atmospheric pressure
- B) transpulmonary pressure increases
- C) the diaphragm relaxes
- D) intrapulmonary pressure is less than atmospheric pressure

Answer: D

Section: 16.02

Topic: Mechanisms of pulmonary ventilation

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: M03.03 Define and state relative values for atmospheric pressure, intrapulmonary pressure, intrapleural pressure, and transpulmonary pressure.

14) An individual presents to the ER with a pneumothorax. The patient is unable to inflate the affected lung because the transpulmonary pressure has decreased.

Answer: TRUE

Section: 16.02

Topic: Clinical applications of the respiratory system

Bloom's: 3. Apply

Accessibility: Keyboard Navigation

HAPS Outcome: M03.03 Define and state relative values for atmospheric pressure, intrapulmonary pressure, intrapleural pressure, and transpulmonary pressure.; M09.01 Predict factors or situations affecting the respiratory system that could disrupt homeostasis.

15) What law states that the pressure of a given quantity of gas is inversely proportional to its volume?

- A) Boyle's Law
- B) Charles' Law
- C) Dalton's Law
- D) Henry's Law

Answer: A

Section: 16.02

Topic: Mechanisms of gas exchange in the lungs and tissues

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: M03.04 State Boyle's Law and relate this law to the specific sequence of events (muscle contractions/relaxations and pressure/volume changes) causing inspiration and expiration.

16) A measure of the distensibility of the lungs is _____.

- A) compliance
- B) elasticity
- C) surface tension
- D) None of the choices are correct.

Answer: A

Section: 16.02

Topic: Gross anatomy of the lungs; Mechanisms of pulmonary ventilation

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: M03.05 Explain how each of the following affect pulmonary ventilation: bronchiolar smooth muscle contractions, lung and thoracic wall compliance and recoil, and pulmonary surfactant and alveolar surface tension.

17) The tendency of the lungs to return to their initial size after stretching is _____.

- A) compliance
- B) elasticity
- C) surface tension
- D) None of the choices are correct.

Answer: B

Section: 16.02

Topic: Mechanisms of pulmonary ventilation

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: M03.05 Explain how each of the following affect pulmonary ventilation: bronchiolar smooth muscle contractions, lung and thoracic wall compliance and recoil, and pulmonary surfactant and alveolar surface tension.

18) What phospholipid decreases the surface tension of the alveoli?

- A) Mucus
- B) Saliva
- C) Surfactant
- D) Lymph

Answer: C

Section: 16.02

Topic: Gross anatomy of the lungs; Mechanisms of pulmonary ventilation

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: M03.05 Explain how each of the following affect pulmonary ventilation: bronchiolar smooth muscle contractions, lung and thoracic wall compliance and recoil, and pulmonary surfactant and alveolar surface tension.

19) How does surfactant reduce the surface tension of water in the lungs?

- A) Decomposes water
- B) Reduces hydrogen bonding between water molecules
- C) Covers the alveoli
- D) All of the choices are correct.

Answer: B

Section: 16.02

Topic: Gross anatomy of the lungs; Mechanisms of pulmonary ventilation

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: M03.05 Explain how each of the following affect pulmonary ventilation: bronchiolar smooth muscle contractions, lung and thoracic wall compliance and recoil, and pulmonary surfactant and alveolar surface tension.

20) Fluid secretion by lung cells is due to _____ alveolar cells.

- A) active transport of Na^+ into
- B) active transport of Cl^- out of
- C) passive transport of HCO_3^- out of
- D) active transport of Na^+ out of

Answer: B

Section: 16.02

Topic: Mechanisms of pulmonary ventilation

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: M03.05 Explain how each of the following affect pulmonary ventilation: bronchiolar smooth muscle contractions, lung and thoracic wall compliance and recoil, and pulmonary surfactant and alveolar surface tension.

21) Acute respiratory distress syndrome causes a protein-rich fluid to accumulate rapidly in the lungs. Predict the consequences of this syndrome if medical intervention does not occur.

- A) Air would be unable to move through the conducting zone.
- B) Air would accumulate in the intrapleural space, interfering with gas exchange.
- C) Tissues throughout the body would experience ischemia due to decreased oxygen delivery.
- D) All of the choices are correct.

Answer: C

Section: 16.02

Topic: Clinical applications of the respiratory system

Bloom's: 4. Analyze

Accessibility: Keyboard Navigation

HAPS Outcome: M09.02 Predict the types of problems that would occur in the body if the respiratory system could not maintain homeostasis.

22) Ventilation would be decreased by decreasing the activity of _____.

- A) type II alveolar cells
- B) type I alveolar cells
- C) alveolar macrophages
- D) None of the choices are correct.

Answer: A

Section: 16.02

Topic: Mechanisms of pulmonary ventilation

Bloom's: 3. Apply

Accessibility: Keyboard Navigation

HAPS Outcome: M03.05 Explain how each of the following affect pulmonary ventilation: bronchiolar smooth muscle contractions, lung and thoracic wall compliance and recoil, and pulmonary surfactant and alveolar surface tension.

23) Respiratory Distress Syndrome (RDS) is a condition associated with premature babies who lack _____.

- A) a-antitrypsin
- B) histamine
- C) type I alveolar cells
- D) surfactant

Answer: D

Section: 16.02

Topic: Mechanisms of pulmonary ventilation; Clinical applications of the respiratory system

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: M09.02 Predict the types of problems that would occur in the body if the respiratory system could not maintain homeostasis.

24) According to whose law, is the pressure in a small alveolus greater than a large alveolus as long as the surface tension is equal?

- A) Boyle's law
- B) Dalton's law
- C) Laplace's law
- D) Henry's law

Answer: C

Section: 16.02

Topic: Mechanisms of pulmonary ventilation

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: M03.05 Explain how each of the following affect pulmonary ventilation: bronchiolar smooth muscle contractions, lung and thoracic wall compliance and recoil, and pulmonary surfactant and alveolar surface tension.

25) Which muscles contraction will stimulate inspiration?

- A) Diaphragm
- B) External intercostals
- C) Parasternal intercostals
- D) All of the choices are correct.

Answer: D

Section: 16.03

Topic: Mechanisms of pulmonary ventilation; Skeletal muscles of the trunk

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: M03.02 Identify the muscles used during quiet inspiration, during forced inspiration, and during forced expiration, as well as the nerves responsible for stimulating those muscles.

- 26) Quiet expiration is caused by _____.
- A) contraction of the external intercostals
 - B) contraction of the internal intercostals
 - C) lung recoil and increased intrapulmonary pressure
 - D) contraction of the scalenes

Answer: C

Section: 16.03

Topic: Mechanisms of pulmonary ventilation

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: M03.02 Identify the muscles used during quiet inspiration, during forced inspiration, and during forced expiration, as well as the nerves responsible for stimulating those muscles.; M03.04 State Boyle's Law and relate this law to the specific sequence of events (muscle contractions/relaxations and pressure/volume changes) causing inspiration and expiration.

- 27) Forced (deep) inspiration occurs with the contraction of the _____.
- A) rectus abdominis
 - B) scalenes
 - C) internal intercostals
 - D) parasternal intercostals

Answer: B

Section: 16.03

Topic: Mechanisms of pulmonary ventilation; Skeletal muscles of the trunk

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: M03.02 Identify the muscles used during quiet inspiration, during forced inspiration, and during forced expiration, as well as the nerves responsible for stimulating those muscles.

28) Quiet inspiration will _____ thoracic and lung volume and _____ intrapulmonary pressure.

- A) increase; increase
- B) increase; decrease
- C) decrease; increase
- D) decrease; decrease

Answer: B

Section: 16.03

Topic: Mechanisms of pulmonary ventilation

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: M03.04 State Boyle's Law and relate this law to the specific sequence of events (muscle contractions/relaxations and pressure/volume changes) causing inspiration and expiration.

29) A patient experiences difficulty exhaling after taking a normal, full breath during a test of pulmonary function. The patient likely has a restrictive lung disorder, characterized by pulmonary fibrosis. This decreases the elastic recoil of the lungs.

Answer: FALSE

Section: 16.03

Topic: Pulmonary air volumes and capacities; Clinical applications of the respiratory system

Bloom's: 5. Evaluate

Accessibility: Keyboard Navigation

HAPS Outcome: M04.01 Define, identify, and determine values for the respiratory volumes (IRV, TV, ERV, and RV) and the respiratory capacities (IC, FRC, VC, and TLC).; M09.02 Predict the types of problems that would occur in the body if the respiratory system could not maintain homeostasis.

30) The maximum amount of gas that can be inspired after a normal tidal expiration is the inspiratory capacity.

Answer: TRUE

Section: 16.03

Topic: Pulmonary air volumes and capacities; Clinical applications of the respiratory system

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: M04.01 Define, identify, and determine values for the respiratory volumes (IRV, TV, ERV, and RV) and the respiratory capacities (IC, FRC, VC, and TLC).

31) Vital capacity is reduced in pulmonary restrictive disorders, but normal in obstructive disorders.

Answer: TRUE

Section: 16.03

Topic: Pulmonary air volumes and capacities; Clinical applications of the respiratory system

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: M04.01 Define, identify, and determine values for the respiratory volumes (IRV, TV, ERV, and RV) and the respiratory capacities (IC, FRC, VC, and TLC).; M09.02 Predict the types of problems that would occur in the body if the respiratory system could not maintain homeostasis.

32) Identify the true statement regarding gas concentrations in the pulmonary system.

A) Blood in the pulmonary veins is low in oxygen.

B) Blood in the pulmonary veins is high in carbon dioxide.

C) The oxygen concentration of inspired air is higher than that of alveolar air.

D) All of the choices are correct.

Answer: C

Section: 16.03

Topic: Mechanisms of gas transport in the blood

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: M05.02a Describe oxygen and carbon dioxide concentration gradients and net gas movements.

33) Cessation of breathing is known as _____.

A) apnea

B) dyspnea

C) eupnea

D) pneumothorax

Answer: A

Section: 16.03

Topic: Clinical applications of the respiratory system

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: M09.02 Predict the types of problems that would occur in the body if the respiratory system could not maintain homeostasis.

- 34) The volume of gas inspired or expired in a quiet respiration cycle is the _____.
- A) tidal volume
 - B) vital capacity
 - C) inspiratory reserve volume
 - D) residual volume

Answer: A

Section: 16.03

Topic: Pulmonary air volumes and capacities

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: M04.01 Define, identify, and determine values for the respiratory volumes (IRV, TV, ERV, and RV) and the respiratory capacities (IC, FRC, VC, and TLC).

- 35) The volume of gas remaining in the lungs after a maximum expiration is the _____.
- A) tidal volume
 - B) vital capacity
 - C) inspiratory reserve volume
 - D) residual volume

Answer: D

Section: 16.03

Topic: Pulmonary air volumes and capacities

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: M04.01 Define, identify, and determine values for the respiratory volumes (IRV, TV, ERV, and RV) and the respiratory capacities (IC, FRC, VC, and TLC).

- 36) The total amount of gas in the lungs after a maximum inspiration is the _____.
- A) vital capacity
 - B) total lung capacity
 - C) tidal volume
 - D) functional residual capacity

Answer: B

Section: 16.03

Topic: Pulmonary air volumes and capacities

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: M04.01 Define, identify, and determine values for the respiratory volumes (IRV, TV, ERV, and RV) and the respiratory capacities (IC, FRC, VC, and TLC).

- 37) Why would an individual with atopic allergic asthma experience difficulty breathing?
- A) Mast cells, which stimulate vasodilation of the airways, are less active in persons with allergies.
 - B) IgE antibodies bind to the inhaled antigens, causing an inflammatory reaction that decreases gas exchange.
 - C) Leukotrienes cause constriction of the bronchioles, producing airway obstruction.
 - D) All of the choices are correct.

Answer: C

Section: 16.03

Topic: Clinical applications of the respiratory system

Bloom's: 4. Analyze

Accessibility: Keyboard Navigation

HAPS Outcome: M09.02 Predict the types of problems that would occur in the body if the respiratory system could not maintain homeostasis.

- 38) Since norepinephrine stimulates bronchodilation, sympathetic agonists could be utilized to treat asthma.

Answer: TRUE

Section: 16.03

Topic: Clinical applications of the respiratory system

Bloom's: 3. Apply

Accessibility: Keyboard Navigation

HAPS Outcome: M03.05 Explain how each of the following affect pulmonary ventilation: bronchiolar smooth muscle contractions, lung and thoracic wall compliance and recoil, and pulmonary surfactant and alveolar surface tension.; M09.02 Predict the types of problems that would occur in the body if the respiratory system could not maintain homeostasis.

- 39) Which of the following may result from emphysema?
- A) Reduced gas exchange surface area
 - B) Air trapping
 - C) Cor pulmonale
 - D) All of the choices are correct.

Answer: D

Section: 16.03

Topic: Clinical applications of the respiratory system

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: M09.02 Predict the types of problems that would occur in the body if the respiratory system could not maintain homeostasis.

40) Pulmonary fibrosis may be caused by _____.

- A) smoking
- B) allergic reactions
- C) breathing in coal dust
- D) increased mucus production

Answer: C

Section: 16.03

Topic: Clinical applications of the respiratory system

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: M09.02 Predict the types of problems that would occur in the body if the respiratory system could not maintain homeostasis.

41) Which of the following is an inflammatory cell associated with COPD but NOT asthma?

- A) Mast cells
- B) Helper T cells
- C) Eosinophils
- D) Cytotoxic T cells

Answer: D

Section: 16.03

Topic: Clinical applications of the respiratory system

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: M09.02 Predict the types of problems that would occur in the body if the respiratory system could not maintain homeostasis.

42) The partial pressure of oxygen decreases at high altitude because the amount of oxygen in the air is decreased.

Answer: FALSE

Section: 16.04

Topic: Mechanisms of gas exchange in the lungs and tissues

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: M05.01 State Dalton's Law and Henry's Law, and relate both laws to the events of external and internal respiration and to the amounts of oxygen and carbon dioxide dissolved in plasma.

43) Which law states that the total pressure of a gas mixture is equal to the sum of the pressures that each gas in the mixture would exert independently?

- A) Boyle's Law
- B) Charles' Law
- C) Dalton's Law
- D) Henry's Law

Answer: C

Section: 16.04

Topic: Mechanisms of gas exchange in the lungs and tissues

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: M05.01 State Dalton's Law and Henry's Law, and relate both laws to the events of external and internal respiration and to the amounts of oxygen and carbon dioxide dissolved in plasma.

44) Gas X makes up 15% of a gas mix, at 760 mm Hg, the partial pressure of gas X would be _____.

- A) 11400 mm Hg
- B) 1140 mm Hg
- C) 114 mm Hg
- D) 646 mm Hg

Answer: C

Section: 16.04

Topic: Mechanisms of gas exchange in the lungs and tissues

Bloom's: 3. Apply

Accessibility: Keyboard Navigation

HAPS Outcome: M05.01 State Dalton's Law and Henry's Law, and relate both laws to the events of external and internal respiration and to the amounts of oxygen and carbon dioxide dissolved in plasma.

45) Increasing the partial pressure of a gas increases the amount of that gas, which will dissolve in a fluid.

Answer: TRUE

Section: 16.04

Topic: Mechanisms of gas exchange in the lungs and tissues

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: M05.01 State Dalton's Law and Henry's Law, and relate both laws to the events of external and internal respiration and to the amounts of oxygen and carbon dioxide dissolved in plasma.

46) The presence of water vapor in the air will reduce the partial pressure of oxygen.

Answer: TRUE

Section: 16.04

Topic: Mechanisms of gas exchange in the lungs and tissues

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: M05.01 State Dalton's Law and Henry's Law, and relate both laws to the events of external and internal respiration and to the amounts of oxygen and carbon dioxide dissolved in plasma.

47) The amount of a given gas dissolved in the blood _____.

A) is directly proportional to the partial pressure of the gas

B) increases at higher altitudes

C) is described primarily by Boyle's law

D) All of the choices are correct.

Answer: A

Section: 16.04

Topic: Mechanisms of gas exchange in the lungs and tissues

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: M05.01 State Dalton's Law and Henry's Law, and relate both laws to the events of external and internal respiration and to the amounts of oxygen and carbon dioxide dissolved in plasma.

48) Which law states that the amount of gas dissolved in a liquid is directly proportional to the partial pressure of the gas?

A) Charles' law

B) Boyle's law

C) Henry's law

D) Laplace's law

Answer: C

Section: 16.04

Topic: Mechanisms of gas exchange in the lungs and tissues

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: M05.01 State Dalton's Law and Henry's Law, and relate both laws to the events of external and internal respiration and to the amounts of oxygen and carbon dioxide dissolved in plasma.

- 49) Breathing 100% oxygen will _____.
- A) significantly increase the oxygen delivery to tissues
 - B) increase the amount of oxygen in red blood cells
 - C) significantly increase the total oxygen content of whole blood
 - D) not change the amount of oxygen dissolved in the plasma

Answer: A

Section: 16.04

Topic: Mechanisms of gas transport in the blood

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: M05.02b Analyze how oxygen and carbon dioxide movements are affected by changes in partial pressure gradients (e.g., at high altitude), surface area, diffusion distance, and solubility and molecular weight of the gases.

- 50) Breathing 100% oxygen will NOT _____.
- A) significantly increase the oxygen delivery to tissues
 - B) increase the amount of oxygen in red blood cells
 - C) significantly increase the total oxygen content of whole blood
 - D) Both increase the amount of oxygen in red blood cells and significantly increase the total oxygen content of whole blood.

Answer: D

Section: 16.04

Topic: Mechanisms of gas exchange in the lungs and tissues; Mechanisms of gas transport in the blood

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: M05.02b Analyze how oxygen and carbon dioxide movements are affected by changes in partial pressure gradients (e.g., at high altitude), surface area, diffusion distance, and solubility and molecular weight of the gases.

- 51) Measurements of arterial P_{CO_2} are used to assess lung function.

Answer: TRUE

Section: 16.04

Topic: Mechanisms of gas exchange in the lungs and tissues; Mechanisms of gas transport in the blood; Clinical applications of the respiratory system

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: M05.02b Analyze how oxygen and carbon dioxide movements are affected by changes in partial pressure gradients (e.g., at high altitude), surface area, diffusion distance, and solubility and molecular weight of the gases.

52) Normal arterial P_{O_2} is _____.

- A) 40 mm Hg
- B) 46 mm Hg
- C) 85 mm Hg
- D) 100 mm Hg

Answer: D

Section: 16.04

Topic: Mechanisms of gas exchange in the lungs and tissues

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: M05.02a Describe oxygen and carbon dioxide concentration gradients and net gas movements.

53) Normal alveolar P_{O_2} is _____.

- A) 40 mm Hg
- B) 46 mm Hg
- C) 100 mm Hg
- D) 105 mm Hg

Answer: D

Section: 16.04

Topic: Mechanisms of gas exchange in the lungs and tissues

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: M05.02a Describe oxygen and carbon dioxide concentration gradients and net gas movements.

54) Normal venous P_{CO_2} is _____.

- A) 40 mm Hg
- B) 46 mm Hg
- C) 100 mm Hg
- D) 105 mm Hg

Answer: B

Section: 16.04

Topic: Mechanisms of gas exchange in the lungs and tissues

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: M05.02a Describe oxygen and carbon dioxide concentration gradients and net gas movements.

55) Normal alveolar P_{CO_2} is _____.

- A) 40 mm Hg
- B) 46 mm Hg
- C) 100 mm Hg
- D) 105 mm Hg

Answer: A

Section: 16.04

Topic: Mechanisms of gas exchange in the lungs and tissues

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: M05.02a Describe oxygen and carbon dioxide concentration gradients and net gas movements.

56) Normal venous P_{O_2} is _____.

- A) 40 mm Hg
- B) 46 mm Hg
- C) 85 mm Hg
- D) 100 mm Hg

Answer: A

Section: 16.04

Topic: Mechanisms of gas exchange in the lungs and tissues

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: M05.02a Describe oxygen and carbon dioxide concentration gradients and net gas movements.

57) The foramen ovale _____.

- A) closes after birth due to decreased pulmonary vascular resistance
- B) normally shunts blood between the pulmonary artery and aorta
- C) normally shunts blood between the right and left ventricles
- D) has no importance in fetal respiratory physiology

Answer: A

Section: 16.04

Topic: Clinical applications of the respiratory system; Fetal blood circulation

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: M08.02 Explain how the respiratory system relates to other body systems to maintain homeostasis.

- 58) The ventilation/perfusion ratio _____.
- A) is lowest at the apex of the lungs
 - B) increases when blood flow is decreased
 - C) decreases when ventilation is increased
 - D) increases due to dilation of the pulmonary arterioles

Answer: B

Section: 16.04

Topic: Mechanisms of gas exchange in the lungs and tissues

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: M05.02c Describe the mechanisms of ventilation-perfusion coupling and predict the effect that reduced alveolar ventilation has on pulmonary blood flow and the effect that reduced pulmonary blood flow has on bronchiole diameter and alveolar ventilation.

- 59) Blood flow is greatest at the _____ of the lungs and perfusion is greatest at the _____ of the lungs.
- A) apex; apex
 - B) apex; base
 - C) base; base
 - D) base; apex

Answer: C

Section: 16.04

Topic: Mechanisms of gas exchange in the lungs and tissues

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: M05.02c Describe the mechanisms of ventilation-perfusion coupling and predict the effect that reduced alveolar ventilation has on pulmonary blood flow and the effect that reduced pulmonary blood flow has on bronchiole diameter and alveolar ventilation.

- 60) The ventilation/perfusion ratio is _____ at the apex of the lungs.
- A) highest
 - B) lowest
 - C) the same as the base

Answer: A

Section: 16.04

Topic: Mechanisms of gas exchange in the lungs and tissues

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: M05.02c Describe the mechanisms of ventilation-perfusion coupling and predict the effect that reduced alveolar ventilation has on pulmonary blood flow and the effect that reduced pulmonary blood flow has on bronchiole diameter and alveolar ventilation.

61) Pulmonary circulation is a _____ resistance and _____ pressure pathway.

- A) low; high
- B) low; low
- C) high; low
- D) high; high

Answer: B

Section: 16.04

Topic: Mechanisms of gas exchange in the lungs and tissues; Pulmonic blood circulation

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: M05.02c Describe the mechanisms of ventilation-perfusion coupling and predict the effect that reduced alveolar ventilation has on pulmonary blood flow and the effect that reduced pulmonary blood flow has on bronchiole diameter and alveolar ventilation.

62) Pulmonary arterioles _____ and system arterioles _____ when P_{O_2} is low.

- A) dilate; dilate
- B) dilate; constrict
- C) constrict; dilate
- D) constrict; constrict

Answer: C

Section: 16.04

Topic: Mechanisms of gas exchange in the lungs and tissues; Pulmonic blood circulation

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: M05.02c Describe the mechanisms of ventilation-perfusion coupling and predict the effect that reduced alveolar ventilation has on pulmonary blood flow and the effect that reduced pulmonary blood flow has on bronchiole diameter and alveolar ventilation.

63) When alveolar ventilation increases, the perfusion of pulmonary arterioles will _____.

- A) increase
- B) decrease
- C) remain unchanged

Answer: A

Section: 16.04

Topic: Mechanisms of gas exchange in the lungs and tissues; Pulmonic blood circulation

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: M05.02c Describe the mechanisms of ventilation-perfusion coupling and predict the effect that reduced alveolar ventilation has on pulmonary blood flow and the effect that reduced pulmonary blood flow has on bronchiole diameter and alveolar ventilation.

64) What condition is caused by large amounts of nitrogen dissolving into the blood due to hyperbaric conditions?

- A) Nitrogen narcosis
- B) Oxygen toxicity
- C) Decompression sickness
- D) Emphysema

Answer: A

Section: 16.04

Topic: Mechanisms of gas transport in the blood; Clinical applications of the respiratory system

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: M09.01 Predict factors or situations affecting the respiratory system that could disrupt homeostasis.

65) Hyperbaric oxygen therapy _____.

- A) is used to treat nitrogen narcosis
- B) exposes patients to high oxygen under low pressure
- C) can be used to promote wound healing
- D) would increase the time required to recover from decompression sickness

Answer: C

Section: 16.04

Topic: Clinical applications of the respiratory system

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: M08.01 Provide specific examples to demonstrate how the respiratory system responds to maintain homeostasis in the body.

66) Decompression sickness is caused by ascending to sea level too quickly which results in bubbles of _____ to form in the blood.

- A) oxygen
- B) carbon dioxide
- C) carbon monoxide
- D) nitrogen

Answer: D

Section: 16.04

Topic: Mechanisms of gas transport in the blood

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: M09.01 Predict factors or situations affecting the respiratory system that could disrupt homeostasis.

67) Decompression sickness could occur if an airplane's cabin depressurized at a high altitude.

Answer: TRUE

Section: 16.04

Topic: Clinical applications of the respiratory system

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: M09.01 Predict factors or situations affecting the respiratory system that could disrupt homeostasis.

68) Activation of the apneustic center would increase tidal volume.

Answer: FALSE

Section: 16.05

Topic: Control of pulmonary ventilation

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: M07.01 Describe the locations and functions of the brainstem respiratory centers.

69) Arterial blood pH is indirectly proportional to the partial carbon dioxide pressure of arterial blood.

Answer: FALSE

Section: 16.05

Topic: Control of pulmonary ventilation

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: M06.03d Predict how changing the partial pressure of carbon dioxide will affect the pH and the concentration bicarbonate ions in the plasma.

70) Central chemoreceptors respond to changes in arterial oxygen and carbon dioxide.

Answer: FALSE

Section: 16.05

Topic: Control of pulmonary ventilation

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: M07.03 Compare and contrast the central and peripheral chemoreceptors.

71) Hypocapnia would induce a rise in the pH of arterial blood.

Answer: TRUE

Section: 16.05

Topic: Control of pulmonary ventilation; Clinical applications of the respiratory system

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: M07.02 List and describe the major chemical and neural stimuli to the respiratory centers.

72) Peripheral chemoreceptors that can detect changes in blood pH are located in the _____.

A) medulla oblongata

B) aortic and carotid bodies

C) pons

D) lungs

Answer: B

Section: 16.05

Topic: Control of pulmonary ventilation

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: M07.03 Compare and contrast the central and peripheral chemoreceptors.

73) Central chemoreceptors in the medulla oblongata directly detect changes in the pH of the _____.

A) blood

B) cerebrospinal fluid

C) lymph

D) air

Answer: B

Section: 16.05

Topic: Control of pulmonary ventilation

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: M07.03 Compare and contrast the central and peripheral chemoreceptors.

74) The primary drive to breathe is elicited by which of the following?

- A) reduced P_{O_2}
- B) reduced P_{CO_2}
- C) increased P_{O_2}
- D) increased P_{CO_2}

Answer: D

Section: 16.05

Topic: Control of pulmonary ventilation

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: M07.02 List and describe the major chemical and neural stimuli to the respiratory centers.

75) What is the condition of having low blood oxygen levels?

- A) Hypocapnia
- B) Hypercapnia
- C) Hypoxia
- D) Hypoxemia

Answer: D

Section: 16.05

Topic: Control of pulmonary ventilation; Clinical applications of the respiratory system

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: M07.02 List and describe the major chemical and neural stimuli to the respiratory centers.

76) The rhythmicity center is located in the _____.

- A) pons
- B) cerebral cortex
- C) medulla oblongata
- D) midbrain

Answer: C

Section: 16.05

Topic: Control of pulmonary ventilation

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: M07.01 Describe the locations and functions of the brainstem respiratory centers.

77) The dorsal respiratory group in the medulla oblongata is involved with _____.

- A) inspiration
- B) expiration
- C) breathing rhythm
- D) Both inspiration and expiration are correct.

Answer: A

Section: 16.05

Topic: Control of pulmonary ventilation

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: M07.01 Describe the locations and functions of the brainstem respiratory centers.

78) The I neurons of the dorsal respiratory group stimulate the _____.

- A) sympathetic nervous system
- B) phrenic nerve
- C) vagus nerve
- D) parasympathetic nervous system

Answer: B

Section: 16.05

Topic: Control of pulmonary ventilation

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: M07.01 Describe the locations and functions of the brainstem respiratory centers.

79) Hyperventilation is stimulated by _____.

- A) increased activity of the apneustic center
- B) decreased contraction of the scalenes
- C) hypercapnia
- D) hypoxemia

Answer: C

Section: 16.05

Topic: Control of pulmonary ventilation

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: M07.04 Define hyperventilation, hypoventilation, panting, eupnea, hyperpnea and apnea.

80) What type of receptors in the wall of the larynx and lungs, cause a person to cough in response to components of smoke and smog?

- A) Aortic bodies
- B) Pulmonary stretch receptors
- C) Medullary chemoreceptors
- D) Irritant receptors

Answer: D

Section: 16.05

Topic: Control of pulmonary ventilation

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: M08.01 Provide specific examples to demonstrate how the respiratory system responds to maintain homeostasis in the body.

81) Limits on stretching the lungs are due to the _____.

- A) Haldane effect
- B) law of Laplace
- C) Hering-Breuer reflex
- D) None of the choices are correct.

Answer: C

Section: 16.05

Topic: Control of pulmonary ventilation

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: M07.05 Explain why it is possible to hold one's breath longer after hyperventilating than after eupnea.

82) Which of the following conditions is characterized by high red blood cell counts?

- A) Anemia
- B) Polycythemia
- C) Uremia
- D) Leukemia

Answer: B

Section: 16.06

Topic: Control of pulmonary ventilation; Functional roles of formed elements of the blood;

Clinical applications of the cardiovascular system

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: M08.02 Explain how the respiratory system relates to other body systems to maintain homeostasis.

83) Renal production of _____ is stimulated by hypoxemia.

- A) renin
- B) colony-stimulating factor
- C) erythropoietin
- D) thrombopoietin

Answer: C

Section: 16.06

Topic: Control of pulmonary ventilation; Physiology of hormones and hormone secretion

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: M08.02 Explain how the respiratory system relates to other body systems to maintain homeostasis.

84) If P_{O_2} and hemoglobin content of blood is normal, how much oxygen is the blood carrying?

- A) 0.3 mL O_2 / 100 mL blood
- B) 10 mL O_2 / 100 mL blood
- C) 20 mL O_2 / 100 mL blood
- D) 35 mL O_2 / 100 mL blood

Answer: C

Section: 16.06

Topic: Mechanisms of gas transport in the blood; Functional roles of formed elements of the blood

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: M06.01b State the reversible chemical equation for oxygen binding to hemoglobin and predict how raising or lowering the partial pressure of oxygen will shift the equilibrium.

85) The form of hemoglobin with iron in an oxidized state is _____.

- A) oxyhemoglobin
- B) deoxyhemoglobin
- C) methemoglobin
- D) carboxyhemoglobin

Answer: C

Section: 16.06

Topic: Mechanisms of gas transport in the blood; Functional roles of formed elements of the blood

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: M06.01b State the reversible chemical equation for oxygen binding to hemoglobin and predict how raising or lowering the partial pressure of oxygen will shift the equilibrium.

- 86) The form of hemoglobin with iron in a reduced state and bonded to oxygen is _____.
- A) oxyhemoglobin
 - B) deoxyhemoglobin
 - C) methemoglobin
 - D) carboxyhemoglobin

Answer: A

Section: 16.06

Topic: Mechanisms of gas transport in the blood; Functional roles of formed elements of the blood

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: M06.01b State the reversible chemical equation for oxygen binding to hemoglobin and predict how raising or lowering the partial pressure of oxygen will shift the equilibrium.

- 87) The form of hemoglobin with iron in a reduced state and not bonded to oxygen is _____.
- A) oxyhemoglobin
 - B) deoxyhemoglobin
 - C) methemoglobin
 - D) carboxyhemoglobin

Answer: B

Section: 16.06

Topic: Mechanisms of gas transport in the blood; Functional roles of formed elements of the blood

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: M06.01b State the reversible chemical equation for oxygen binding to hemoglobin and predict how raising or lowering the partial pressure of oxygen will shift the equilibrium.

88) The form of hemoglobin with iron in a reduced state and bonded to carbon monoxide is _____.

- A) oxyhemoglobin
- B) deoxyhemoglobin
- C) methemoglobin
- D) carboxyhemoglobin

Answer: D

Section: 16.06

Topic: Mechanisms of gas transport in the blood; Functional roles of formed elements of the blood

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: M06.01b State the reversible chemical equation for oxygen binding to hemoglobin and predict how raising or lowering the partial pressure of oxygen will shift the equilibrium.

89) Carbon monoxide is lethal because it _____.

- A) reduces CO_2 and slows breathing
- B) increases CO_2 and causes seizures
- C) binds hemoglobin, preventing oxygen binding
- D) increases oxygen unloading at the cells

Answer: C

Section: 16.06

Topic: Mechanisms of gas transport in the blood; Clinical applications of the respiratory system

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: M09.01 Predict factors or situations affecting the respiratory system that could disrupt homeostasis.

90) The formation of oxyhemoglobin from deoxyhemoglobin at the lungs is called an unloading reaction.

Answer: FALSE

Section: 16.06

Topic: Mechanisms of gas transport in the blood; Functional roles of formed elements of the blood

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: M06.01b State the reversible chemical equation for oxygen binding to hemoglobin and predict how raising or lowering the partial pressure of oxygen will shift the equilibrium.

91) The affinity of hemoglobin for oxygen is _____ as the partial pressure of oxygen is raised.

- A) increased
- B) decreased
- C) unchanged

Answer: A

Section: 16.06

Topic: Mechanisms of gas transport in the blood; Functional roles of formed elements of the blood

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: M06.01b State the reversible chemical equation for oxygen binding to hemoglobin and predict how raising or lowering the partial pressure of oxygen will shift the equilibrium.

92) What is the normal value of arterial percent hemoglobin saturation?

- A) 100%
- B) 97%
- C) 90%
- D) 86%

Answer: B

Section: 16.06

Topic: Mechanisms of gas transport in the blood; Functional roles of formed elements of the blood

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: M06.02a Interpret the curve at low and high partial pressures of oxygen.

93) An increase in body temperature, as in a fever, would make oxygen more readily available to cells.

Answer: TRUE

Section: 16.06

Topic: Mechanisms of gas transport in the blood

Bloom's: 3. Apply

Accessibility: Keyboard Navigation

HAPS Outcome: M06.02b List factors that shift the curve down and to the right, and explain how this results in increased oxygen delivery to the tissues.

- 94) The Bohr effect describes the _____.
- A) effect of pH on the affinity of hemoglobin for oxygen
 - B) effect of pH on the affinity of hemoglobin for carbon dioxide
 - C) mechanism of ventilation
 - D) effect of solubility on the amount of gas dissolved in blood

Answer: A

Section: 16.06

Topic: Mechanisms of gas transport in the blood

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: M06.02b List factors that shift the curve down and to the right, and explain how this results in increased oxygen delivery to the tissues.

- 95) At rest, normal oxygen unloading is _____.
- A) 97%
 - B) 75%
 - C) 39%
 - D) 22%

Answer: D

Section: 16.06

Topic: Mechanisms of gas transport in the blood

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: M05.03b Explain the factors that maintain oxygen and carbon dioxide gradients between blood and tissue cells.

- 96) According to the Bohr effect, as pH is lowered, the affinity of hemoglobin for oxygen _____.
- A) increases
 - B) decreases
 - C) remains unchanged

Answer: B

Section: 16.06

Topic: Mechanisms of gas exchange in the lungs and tissues; Mechanisms of gas transport in the blood

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: M06.02b List factors that shift the curve down and to the right, and explain how this results in increased oxygen delivery to the tissues.

97) Tissues receive more O₂ when the pH is lowered.

Answer: TRUE

Section: 16.06

Topic: Mechanisms of gas exchange in the lungs and tissues; Mechanisms of gas transport in the blood

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: M06.02b List factors that shift the curve down and to the right, and explain how this results in increased oxygen delivery to the tissues.

98) When tissues are producing more CO₂ through increased metabolic activity, less O₂ is provided to those tissues.

Answer: FALSE

Section: 16.06

Topic: Mechanisms of gas exchange in the lungs and tissues; Mechanisms of gas transport in the blood

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: M06.02b List factors that shift the curve down and to the right, and explain how this results in increased oxygen delivery to the tissues.

99) A decrease in temperature _____.

A) will shift the oxygen dissociation curve to the right

B) will shift the oxygen dissociation curve to the left

C) will not shift the oxygen dissociation curve

Answer: B

Section: 16.06

Topic: Mechanisms of gas exchange in the lungs and tissues; Mechanisms of gas transport in the blood

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: M06.02c List factors that shift the curve up and to the left, and explain how this facilitates oxygen binding to hemoglobin in the lungs.

100) An increase in 2,3-diphosphoglyceric acid (2,3-DPG) will _____ the affinity of hemoglobin for oxygen.

- A) increase
- B) decrease
- C) have no effect on

Answer: B

Section: 16.06

Topic: Mechanisms of gas transport in the blood

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: M06.02b List factors that shift the curve down and to the right, and explain how this results in increased oxygen delivery to the tissues.

101) Hemoglobin F _____.

- A) has a lower affinity for oxygen than hemoglobin A
- B) contains two alpha and two gamma chains
- C) binds large amounts of 2,3-DPG
- D) is increased in sickle-cell anemia

Answer: B

Section: 16.06

Topic: Mechanisms of gas transport in the blood

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: M06.02d Describe the oxygen-fetal hemoglobin saturation curve and its impact on oxygen delivery to fetal tissues.

102) 2,3-DPG comes from _____.

- A) aerobic respiration in red blood cells
- B) anaerobic respiration in red blood cells
- C) type II alveolar cells
- D) tissues with high amounts of oxygen

Answer: B

Section: 16.06

Topic: Mechanisms of gas transport in the blood

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: M06.02b List factors that shift the curve down and to the right, and explain how this results in increased oxygen delivery to the tissues.

103) In anemia, 2,3-DPG is _____ and oxygen affinity is _____.

- A) decreased; decreased
- B) decreased; increased
- C) increased; increased
- D) increased; decreased

Answer: D

Section: 16.06

Topic: Mechanisms of gas transport in the blood

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: M06.02b List factors that shift the curve down and to the right, and explain how this results in increased oxygen delivery to the tissues.

104) Which of the following will decrease the affinity of hemoglobin for oxygen?

- A) Decreased pH, decreased temperature, or decreased 2,3-DPG
- B) Decreased pH, increased temperature, or increased 2,3-DPG
- C) Increased pH, increased temperature, or decreased 2,3-DPG
- D) Increased pH, decreased temperature, or increased 2,3-DPG

Answer: B

Section: 16.06

Topic: Mechanisms of gas transport in the blood

Bloom's: 2. Understand; 4. Analyze

Accessibility: Keyboard Navigation

HAPS Outcome: M06.02b List factors that shift the curve down and to the right, and explain how this results in increased oxygen delivery to the tissues.

105) A family of hemoglobin diseases found primarily in people of Mediterranean ancestry is _____.

- A) thalassemia
- B) sickle-cell anemia
- C) myoglobinemia
- D) leukemia

Answer: A

Section: 16.06

Topic: Mechanisms of gas transport in the blood; Clinical applications of the respiratory system

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: M09.01 Predict factors or situations affecting the respiratory system that could disrupt homeostasis.

106) What disease is characterized by the abnormal hemoglobin S?

- A) Sickle cell anemia
- B) Thalassemia
- C) Cystic fibrosis
- D) Emphysema

Answer: A

Section: 16.06

Topic: Mechanisms of gas transport in the blood; Clinical applications of the respiratory system

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: M09.01 Predict factors or situations affecting the respiratory system that could disrupt homeostasis.

107) Myoglobin binds to more oxygen molecules than hemoglobin.

Answer: FALSE

Section: 16.06

Topic: Mechanisms of gas transport in the blood

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: M06.01a Describe the ways in which oxygen is transported in blood and discuss the relative importance of each to total oxygen transport.

108) The highest oxygen affinity is demonstrated by _____.

- A) hemoglobin A
- B) hemoglobin F
- C) myoglobin
- D) hemoglobin S

Answer: C

Section: 16.06

Topic: Mechanisms of gas transport in the blood

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: M06.01a Describe the ways in which oxygen is transported in blood and discuss the relative importance of each to total oxygen transport.

109) Imagine that erythrocytes were no longer able to utilize the enzyme carbonic anhydrase. Given its action, a decrease in the pH of arterial blood would be expected.

Answer: FALSE

Section: 16.07

Topic: Mechanisms of gas transport in the blood

Bloom's: 4. Analyze

Accessibility: Keyboard Navigation

HAPS Outcome: M06.03b State the reversible chemical equation for the reaction of carbon dioxide and water to carbonic acid and then to hydrogen ion and bicarbonate ion.

110) The exchange of chloride ions for bicarbonate through tissue capillaries is called the _____.

- A) chloride shift
- B) Bohr effect
- C) oxygen toxicity
- D) acidosis

Answer: A

Section: 16.07

Topic: Mechanisms of gas transport in the blood

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: M06.03g Explain how each of the following relates to carbon dioxide transport: carbonic anhydrase, hydrogen ions binding to hemoglobin and plasma proteins, the chloride ion shift, and the oxygen-hemoglobin saturation level.

111) The majority of carbon dioxide is transported in the blood as _____.

- A) dissolved carbon dioxide in the blood
- B) bicarbonate ion
- C) carbaminohemoglobin
- D) carboxyhemoglobin

Answer: B

Section: 16.07

Topic: Mechanisms of gas transport in the blood

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: M06.03a Describe the ways in which carbon dioxide is transported in blood and discuss the relative importance of each to total carbon dioxide transport.

112) The enzyme _____ catalyzes the formation of H_2CO_3 from CO_2 and water.

- A) renin
- B) nitric oxide synthase
- C) lactate dehydrogenase
- D) carbonic anhydrase

Answer: D

Section: 16.07

Topic: Mechanisms of gas transport in the blood

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: M06.03b State the reversible chemical equation for the reaction of carbon dioxide and water to carbonic acid and then to hydrogen ion and bicarbonate ion.

113) Carbon dioxide _____ oxygen unloading and oxygen unloading _____ carbon dioxide transport.

- A) increases; improves
- B) increases; worsens
- C) decreases; improves
- D) decreases; worsens

Answer: A

Section: 16.07

Topic: Mechanisms of gas transport in the blood

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: M06.03f State the reversible chemical equation for carbon dioxide binding to deoxyhemoglobin and predict how changing carbon dioxide concentrations will affect deoxyhemoglobin levels in the tissues and the lungs.

114) Where does the reverse chloride shift occur?

- A) Tissue capillaries
- B) Pulmonary capillaries
- C) Arterioles
- D) Venules

Answer: B

Section: 16.07

Topic: Mechanisms of gas transport in the blood

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: M06.03g Explain how each of the following relates to carbon dioxide transport: carbonic anhydrase, hydrogen ions binding to hemoglobin and plasma proteins, the chloride ion shift, and the oxygen-hemoglobin saturation level.

115) Respiratory acidosis results from hyperventilation.

Answer: FALSE

Section: 16.08

Topic: Mechanisms of gas transport in the blood; Clinical applications of the respiratory system

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: Q06.02 Describe the role of the respiratory system in regulation of blood pH and predict how hypo- and hyperventilation will affect blood pH.

116) Hypoventilation can correct _____.

A) metabolic acidosis

B) respiratory acidosis

C) metabolic alkalosis

D) respiratory alkalosis

Answer: C

Section: 16.08

Topic: Mechanisms of gas transport in the blood; Control of pulmonary ventilation; Buffer systems and their roles in acid-base balance

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: Q06.02 Describe the role of the respiratory system in regulation of blood pH and predict how hypo- and hyperventilation will affect blood pH.

117) The affinity of hemoglobin for oxygen _____.

A) is greater than the affinity for carbon monoxide

B) is increased in methemoglobin

C) decreases as the height above sea level increases

D) is increased in response to metabolic alkalosis

Answer: D

Section: 16.08

Topic: Mechanisms of gas transport in the blood; Clinical applications of the respiratory system

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: Q06.02b With respect to the oxygen-hemoglobin curve, list the factors that shift the curve up and to the left, and explain how this facilitates oxygen binding to hemoglobin in the lungs.

118) The metabolic regulation of blood pH occurs in _____.

- A) the lungs
- B) the liver
- C) the kidneys
- D) all organs

Answer: C

Section: 16.08

Topic: Buffer systems and their roles in acid-base balance; Regulation of urine volume and composition

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: M08.02 Explain how the respiratory system relates to other body systems to maintain homeostasis.

119) Metabolic alkalosis _____.

- A) may be caused by excessive vomiting
- B) occurs when the partial pressure of oxygen is decreased
- C) occurs when arterial pH is less than 7.4
- D) is induced by hypoventilation

Answer: A

Section: 16.08

Topic: Buffer systems and their roles in acid-base balance

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: Q06.02 Describe the role of the respiratory system in regulation of blood pH and predict how hypo- and hyperventilation will affect blood pH.; Q08.01 Predict factors or situations affecting the respiratory system that could disrupt homeostasis.

120) A pH above 7.45 is considered _____.

- A) acidosis
- B) alkalosis
- C) normal
- D) metabolic

Answer: B

Section: 16.08

Topic: Buffer systems and their roles in acid-base balance

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: Q06.02 Describe the role of the respiratory system in regulation of blood pH and predict how hypo- and hyperventilation will affect blood pH.

121) Which of the following changes would occur during exercise?

- A) Increased blood gases
- B) Decreased ventilation
- C) Decreased oxygen delivery to muscles
- D) Increased oxygen extraction by muscles

Answer: D

Section: 16.08

Topic: Mechanisms of gas exchange in the lungs and tissues

Bloom's: 3. Apply

Accessibility: Keyboard Navigation

HAPS Outcome: M08.01 Provide specific examples to demonstrate how the respiratory system responds to maintain homeostasis in the body.

122) The immediate increase in ventilation as exercise begins can be explained through both neurogenic and humoral responses.

Answer: TRUE

Section: 16.09

Topic: Control of pulmonary ventilation

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: M08.01 Provide specific examples to demonstrate how the respiratory system responds to maintain homeostasis in the body.

123) Many athletes train at higher altitudes immediately prior to an athletic competition. Select the scenario that correctly identifies how acclimatization to a higher elevation would improve endurance performance.

- A) A hypoxic ventilatory response occurs that remains in place for a few weeks after returning to a lower altitude.
- B) Hemoglobin's affinity for oxygen will increase; therefore, tissues will receive more oxygen during exercise.
- C) Increased ventilation at the higher altitudes will improve tidal volume when returning to the lower altitude.
- D) Erythropoietin release will increase; consequently, the athlete will have a greater aerobic capacity when returning to the lower altitude.

Answer: D

Section: 16.09

Topic: Mechanisms of gas transport in the blood

Bloom's: 3. Apply

Accessibility: Keyboard Navigation

HAPS Outcome: M08.01 Provide specific examples to demonstrate how the respiratory system responds to maintain homeostasis in the body.

- 124) Acclimatization to altitude _____.
- A) stimulates increased blood cell synthesis
 - B) decreases ventilation
 - C) increases the affinity of hemoglobin for oxygen
 - D) All of the choices are correct.

Answer: A

Section: 16.09

Topic: Mechanisms of gas transport in the blood

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: M08.01 Provide specific examples to demonstrate how the respiratory system responds to maintain homeostasis in the body.

- 125) If a disease occurred that increased hemoglobin's affinity for oxygen, tissues would receive inadequate oxygen.

Answer: FALSE

Section: 16.09

Topic: Mechanisms of gas exchange in the lungs and tissues

Bloom's: 4. Analyze

Accessibility: Keyboard Navigation

HAPS Outcome: M06.02b List factors that shift the curve down and to the right, and explain how this results in increased oxygen delivery to the tissues.

- 126) During muscular contractions associated with inhalation, what would happen if intrapleural pressure were to be less than intrapulmonary pressure?
- A) Lung volume would remain unchanged
 - B) Thoracic volume increase with lung collapse
 - C) Thoracic volume increase with lung inflation
 - D) Thoracic volume decrease with lung collapse

Answer: C

Section: 16.02

Topic: Mechanisms of pulmonary ventilation; Pulmonary air volumes and capacities

Bloom's: 5. Evaluate

Accessibility: Keyboard Navigation

HAPS Outcome: M03.06 Describe the forces that tend to collapse the lungs and those that normally oppose or prevent collapse.

127) Evaluate the pulmonary pressures provided, and determine what portion of the respiratory cycle is represented.

Transpulmonary pressure = 6 mmHg
Intrapleural pressure = 667 mmHg
Atmospheric pressure = 670 mmHg
Intrapulmonary pressure = 673 mmHg

- A) Lung volume is unchanged
- B) Normal inspiration
- C) Normal expiration
- D) Thoracic volume increase with lung collapse

Answer: C

Section: 16.02

Topic: Mechanisms of pulmonary ventilation; Pulmonary air volumes and capacities

Bloom's: 5. Evaluate

Accessibility: Keyboard Navigation

HAPS Outcome: M03.03 Define and state relative values for atmospheric pressure, intrapulmonary pressure, intrapleural pressure, and transpulmonary pressure.; M03.06 Describe the forces that tend to collapse the lungs and those that normally oppose or prevent collapse.

128) Given the pressures listed, identify the respiratory event being measured.

Transpulmonary pressure = 15 mmHg
Intrapleural pressure = 765 mmHg
Atmospheric pressure = 755 mmHg
Intrapulmonary pressure = 750 mmHg

- A) Tidal inspiration
- B) Forced inspiration
- C) Forced expiration
- D) Tidal expiration

Answer: C

Section: 16.02

Topic: Mechanisms of pulmonary ventilation; Pulmonary air volumes and capacities

Bloom's: 5. Evaluate

Accessibility: Keyboard Navigation

HAPS Outcome: M03.03 Define and state relative values for atmospheric pressure, intrapulmonary pressure, intrapleural pressure, and transpulmonary pressure.; M03.06 Describe the forces that tend to collapse the lungs and those that normally oppose or prevent collapse.

129) In assessing a mechanical prototype to demonstrate lung function, it is suggested that the final version of synthetic lung material will need to be easier to inflate and easier to deflate in order to be cost effective. Which will need to be true?

- A) More compliant and less elastic
- B) Less compliant and less elastic
- C) More compliant and more elastic
- D) Less compliant and more elastic

Answer: C

Section: 16.02

Topic: Mechanisms of pulmonary ventilation; Clinical applications of the respiratory system

Bloom's: 4. Analyze

Accessibility: Keyboard Navigation

HAPS Outcome: M03.05 Explain how each of the following affect pulmonary ventilation: bronchiolar smooth muscle contractions, lung and thoracic wall compliance and recoil, and pulmonary surfactant and alveolar surface tension.; M03.06 Describe the forces that tend to collapse the lungs and those that normally oppose or prevent collapse.

130) Due to acute trauma and resulting damage of the diaphragm, the _____ will need to become more active in order to aid someone during _____.

- A) sternocleidomastoid and parasternal muscles; expiration
- B) external intercostals; expiration
- C) scalenes and pectoralis minor; inspiration
- D) rectus abdominis; inspiration

Answer: C

Section: 16.03

Topic: Mechanisms of pulmonary ventilation; Clinical applications of the respiratory system

Bloom's: 5. Evaluate

Accessibility: Keyboard Navigation

HAPS Outcome: M03.02 Identify the muscles used during quiet inspiration, during forced inspiration, and during forced expiration, as well as the nerves responsible for stimulating those muscles.

131) Rebecca's inspiratory reserve volume = 5, vital capacity = 8, residual volume = 1, and expiratory reserve volume = 2. Her tidal volume would be equal to _____ and her total lung capacity would be _____.

- A) 2; 10
- B) 3; 7
- C) 1; 9
- D) 1; 13
- E) Unable to determine with the given data.

Answer: C

Section: 16.03

Topic: Pulmonary air volumes and capacities

Bloom's: 3. Apply

Accessibility: Keyboard Navigation

HAPS Outcome: M04.01 Define, identify, and determine values for the respiratory volumes (IRV, TV, ERV, and RV) and the respiratory capacities (IC, FRC, VC, and TLC).

132) The normal partial pressure differences between inspired air and alveolar gas for O₂, CO₂, H₂O, and N₂ can be explained because of _____.

- A) net movements of CO₂, O₂, and H₂O into the alveoli from blood capillaries
- B) net movements of CO₂ toward the alveoli with net movements of O₂ and H₂O into the capillaries
- C) net movements of CO₂ toward the alveoli, O₂ toward the alveoli, and H₂O is added along the respiratory tract
- D) net movement of CO₂ and N₂ toward the alveoli and H₂O movements toward the alveoli as respiratory water

Answer: C

Section: 16.04

Topic: Mechanisms of gas exchange in the lungs and tissues

Bloom's: 4. Analyze

Accessibility: Keyboard Navigation

HAPS Outcome: M05.02a Describe oxygen and carbon dioxide concentration gradients and net gas movements.

133) You open a can of carbonated soda and pour it into a glass. The carbon dioxide formed bubbles because the partial pressure of carbon dioxide in the air above the soda _____, a process explained by _____ Law.

- A) decreased; Dalton's
- B) increased; Charles'
- C) decreased; Henry's
- D) increased Boyle's

Answer: C

Section: 16.04

Topic: Mechanisms of gas exchange in the lungs and tissues

Bloom's: 3. Apply

Accessibility: Keyboard Navigation

HAPS Outcome: M05.02a Describe oxygen and carbon dioxide concentration gradients and net gas movements.; M05.02b Analyze how oxygen and carbon dioxide movements are affected by changes in partial pressure gradients (e.g., at high altitude), surface area, diffusion distance, and solubility and molecular weight of the gases.

134) Assuming you have normal respiratory function at sea level, start holding your breath. Which of the following could be true in 60 seconds?

- A) Venous $PO_2 = 50$ mmHg
- B) The oxygen-hemoglobin dissociation curve is shifting to the left
- C) Arterial $PCO_2 = 50$ mmHg
- D) Alveolar $PO_2 = 105$ mmHg

Answer: C

Section: 16.06

Topic: Mechanisms of gas exchange in the lungs and tissues

Bloom's: 5. Evaluate

Accessibility: Keyboard Navigation

HAPS Outcome: M05.03a Describe oxygen and carbon dioxide concentration gradients and net gas movements.

Human Physiology, 15e (Fox)
Chapter 18 The Digestive System

1) Water is an essential component to the digestion of polymers into monomers along the GI tract.

Answer: TRUE

Section: 18.01

Topic: General functions of the digestive system; Chemical digestion

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: N01.01 Describe the major functions of the digestive system.

2) Enzymes and bicarbonate are considered exocrine secretions of the gastrointestinal system.

Answer: TRUE

Section: 18.01

Topic: General functions of the digestive system; Chemical digestion

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: N01.01 Describe the major functions of the digestive system.; N06.02c List the enzymes used in enzymatic hydrolysis.

3) Wavelike muscular contraction of the gastrointestinal tract is called _____.

A) peristalsis

B) segmentation

C) deglutition

D) mastication

Answer: A

Section: 18.01

Topic: General functions of the digestive system; Mechanical digestion

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: N01.01 Describe the major functions of the digestive system.; N05.02 Define the terms peristalsis, segmentation, migrating myoelectric complex, and mass movement, and discuss the role that these activities play in the function of various regions of the alimentary canal.

4) Functions of the digestive system include all of the following EXCEPT _____.

- A) deglutition
- B) hormone secretion
- C) absorption
- D) hormone degradation

Answer: D

Section: 18.01

Topic: General functions of the digestive system

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: N01.01 Describe the major functions of the digestive system.

5) The lining of the intestine provides a physical barrier against microorganisms and their toxins.

Answer: TRUE

Section: 18.01

Topic: General functions of the digestive system; Gross anatomy of the digestive tract

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: N02.01b Describe regional specializations in the histological structure of the alimentary canal and relate these specializations to the functions of the particular organs in which they are located.

6) While considered an organ of the gastrointestinal system, the _____ is not part of the gastrointestinal tract.

- A) pharynx
- B) liver
- C) small intestine
- D) esophagus

Answer: B

Section: 18.01

Topic: Gross anatomy of the digestive tract

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: N01.01 Describe the major functions of the digestive system.

7) Absorptive cells of the gastrointestinal tract are located within the mucosa.

Answer: TRUE

Section: 18.01

Topic: Microscopic anatomy of the digestive tract; Processes of absorption

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: N02.01a Identify, and describe the histological structure and the function of, each of the four layers of the alimentary canal wall - the mucosa, the submucosa, the muscularis externa, and the serosa (visceral peritoneum).

8) Damage to which tunic of the GI tract would directly affect Auerbach's plexus?

A) Mucosa

B) Submucosa

C) Muscularis

D) Serosa

Answer: C

Section: 18.01

Topic: Gross anatomy of the digestive tract; Clinical applications of the digestive system

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: N02.01a Identify, and describe the histological structure and the function of, each of the four layers of the alimentary canal wall - the mucosa, the submucosa, the muscularis externa, and the serosa (visceral peritoneum).

9) Which of the following motility processes is NOT correctly matched to its description?

A) Peristalsis—rhythmic, wave-like contractions

B) Mastication—removal of wastes

C) Ingestion—taking food into the mouth

D) Deglutition—swallowing

Answer: B

Section: 18.01

Topic: General functions of the digestive system; Mechanical digestion

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: N05.02 Define the terms peristalsis, segmentation, migrating myoelectric complex, and mass movement, and discuss the role that these activities play in the function of various regions of the alimentary canal.

10) The transport of digested food into the blood or lymph is _____.

- A) ingestion
- B) deglutition
- C) absorption
- D) segmentation

Answer: C

Section: 18.01

Topic: General functions of the digestive system; Processes of absorption

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: N01.01 Describe the major functions of the digestive system.; N07.01b

Explain the processes involved in absorption of monosaccharides, peptides and amino acids, and fatty acids and monoglycerides.

11) What is necessary for the hydrolysis of complex food molecules?

- A) Specific enzymes
- B) Acid
- C) Water
- D) Both specific enzymes and water are correct.

Answer: D

Section: 18.01

Topic: Chemical digestion

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: N01.01 Describe the major functions of the digestive system.; N06.02c List the enzymes used in enzymatic hydrolysis.

12) Which tunic of the GI tract is vascular and has many nerves and glands?

- A) Mucosa
- B) Submucosa
- C) Muscularis
- D) Serosa

Answer: B

Section: 18.01

Topic: Gross anatomy of the digestive tract

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: N02.01a Identify, and describe the histological structure and the function of, each of the four layers of the alimentary canal wall - the mucosa, the submucosa, the muscularis externa, and the serosa (visceral peritoneum).

13) Parasympathetic antagonists would stimulate gastrointestinal motility.

Answer: FALSE

Section: 18.01

Topic: Hormonal and neural regulation of digestive processes

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: N08.02 Discuss regulation of reflexes by the enteric nervous system and the parasympathetic nervous system.

14) Place the tunics of the GI tract wall in the correct order from superficial to deep.

- A) Submucosa, mucosa, serosa, muscularis
- B) Mucosa, muscularis, submucosa, serosa
- C) Serosa, submucosa, mucosa, muscularis
- D) Serosa, muscularis, submucosa, mucosa

Answer: D

Section: 18.01

Topic: Gross anatomy of the digestive tract

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: N02.01a Identify, and describe the histological structure and the function of, each of the four layers of the alimentary canal wall - the mucosa, the submucosa, the muscularis externa, and the serosa (visceral peritoneum).

15) Damage to the _____ would reduce GI secretions, while damage to the _____ could impact mastication.

- A) glossopharyngeal nerve; hypoglossal nerve
- B) hypoglossal nerve; vagus nerve
- C) vagus nerve; hypoglossal nerve
- D) vagus nerve; glossopharyngeal nerve

Answer: C

Section: 18.01

Topic: Hormonal and neural regulation of digestive processes; Functions of the autonomic nervous system

Bloom's: 3. Apply

Accessibility: Keyboard Navigation

HAPS Outcome: N08.02 Discuss regulation of reflexes by the enteric nervous system and the parasympathetic nervous system.; N10.01 Predict factors or situations affecting the digestive system that could disrupt homeostasis.

- 16) Choose the statement that correctly characterizes the GI tract.
- A) The two openings of the GI tract permit two-way transport of food, which maximizes absorption.
 - B) Body tissues are composed of substrates similar to food; thus, they would be degraded by enzymes in the GI tract if exposed to the internal environment of the GI tract.
 - C) The harsh environment in the GI tract allows for the absorption of indigestible materials without harming body tissues.
 - D) All of the choices are correct.

Answer: B

Section: 18.01

Topic: Gross anatomy of the digestive tract

Bloom's: 4. Analyze

Accessibility: Keyboard Navigation

HAPS Outcome: N10.01 Predict factors or situations affecting the digestive system that could disrupt homeostasis.; N02.01a Identify, and describe the histological structure and the function of, each of the four layers of the alimentary canal wall - the mucosa, the submucosa, the muscularis externa, and the serosa (visceral peritoneum).

- 17) Which of the following is one of the phases of swallowing?
- A) Pharyngeal
 - B) Peristalsis
 - C) Reflux
 - D) Segmentation

Answer: A

Section: 18.02

Topic: Mechanical digestion

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: N05.01 List the structures involved in the process of deglutition and explain how they function, including the changes in position of the glottis and larynx that prevent aspiration.; N06.01b List the organs and structures of the digestive system that function in mechanical digestion and explain the details of the process for each.

- 18) The initial phase of deglutition is a voluntary process.

Answer: TRUE

Section: 18.02

Topic: Mechanical digestion

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: N05.01 List the structures involved in the process of deglutition and explain how they function, including the changes in position of the glottis and larynx that prevent aspiration.; N06.01b List the organs and structures of the digestive system that function in mechanical digestion and explain the details of the process for each.

19) Chewing of food is known as _____.

- A) deglutition
- B) mastication
- C) peristalsis
- D) segmentation

Answer: B

Section: 18.02

Topic: General functions of the digestive system; Mechanical digestion

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: N06.01b List the organs and structures of the digestive system that function in mechanical digestion and explain the details of the process for each.

20) What structure keeps food from exiting from the nose during swallowing?

- A) Epiglottis
- B) Nasopharynx
- C) Soft palate
- D) Tongue

Answer: C

Section: 18.02

Topic: Gross anatomy of the digestive tract

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: N02.02b Identify the hard and soft palates and discuss their functions.; N05.01 List the structures involved in the process of deglutition and explain how they function, including the changes in position of the glottis and larynx that prevent aspiration.

21) What structure keeps food from entering the larynx during swallowing?

- A) Epiglottis
- B) Laryngopharynx
- C) Soft palate
- D) Tongue

Answer: A

Section: 18.02

Topic: Gross anatomy of the digestive tract

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: N05.01 List the structures involved in the process of deglutition and explain how they function, including the changes in position of the glottis and larynx that prevent aspiration.

22) The combination of chewed food and saliva is called _____.

- A) chyme
- B) a bolus
- C) pylorus
- D) hiatal

Answer: B

Section: 18.02

Topic: Mechanical digestion

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: N05.01 List the structures involved in the process of deglutition and explain how they function, including the changes in position of the glottis and larynx that prevent aspiration.

23) The superior portion of the esophagus contains smooth muscle in its wall.

Answer: FALSE

Section: 18.02

Topic: Gross anatomy of the digestive tract

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: N02.04b Describe the locations of skeletal and smooth muscle within the wall of the esophagus.

24) Why does the upper third of the esophagus have skeletal muscle in its wall?

- A) To prevent choking
- B) The first phase of swallowing is voluntary
- C) So that peristalsis can occur
- D) The first phase of swallowing is involuntary

Answer: B

Section: 18.02

Topic: Gross anatomy of the digestive tract

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: N02.04b Describe the locations of skeletal and smooth muscle within the wall of the esophagus.; N05.01 List the structures involved in the process of deglutition and explain how they function, including the changes in position of the glottis and larynx that prevent aspiration.

25) Deglutition is coordinated by the swallowing center in the _____.

- A) brain stem
- B) cerebrum
- C) spinal cord
- D) cerebellum

Answer: A

Section: 18.02

Topic: Hormonal and neural regulation of digestive processes

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: N05.01 List the structures involved in the process of deglutition and explain how they function, including the changes in position of the glottis and larynx that prevent aspiration.

26) A patient underwent a partial gastrectomy. As a result of this procedure, the patient _____.

- A) would have an increased risk of peptic ulcers and gastroesophageal reflux disease
- B) may become hypoglycemic due to impaired carbohydrate digestion
- C) may require regular vitamin B12 injections
- D) may experience an irregular increase in hunger due to increased ghrelin secretion

Answer: C

Section: 18.02

Topic: Chemical digestion

Bloom's: 5. Evaluate

Accessibility: Keyboard Navigation

HAPS Outcome: N02.05e Identify the structure of a gastric gland including the location of the chief (zymogenic) cells, parietal (oxyntic) cells, enteroendocrine cells, and mucous cells, and discuss the functions of these different cell types.; N06.03 Discuss the function, production, and regulation of secretion of hydrochloric acid (HCl).

27) Removal of the _____ would NOT impact _____.

- A) Stomach; Storage of food
- B) Large intestine; Absorption of fat-soluble vitamins
- C) Stomach; Digestion of most foods
- D) Small intestine; Absorption of sugar and protein

Answer: C

Section: 18.02

Topic: General functions of the digestive system

Bloom's: 4. Analyze

Accessibility: Keyboard Navigation

HAPS Outcome: N02.05b Identify the structure and discuss the function of the cardiac region, the fundus, the body and the pyloric region of the stomach.

28) Removal of the stomach could lead to anemia.

Answer: TRUE

Section: 18.02

Topic: Clinical applications of the digestive system

Bloom's: 3. Apply

Accessibility: Keyboard Navigation

HAPS Outcome: N02.05e Identify the structure of a gastric gland including the location of the chief (zymogenic) cells, parietal (oxyntic) cells, enteroendocrine cells, and mucous cells, and discuss the functions of these different cell types.; N07.02 Discuss the absorption of fat-soluble and water-soluble vitamins and the absorption of vitamin B12.; N10.01 Predict factors or situations affecting the digestive system that could disrupt homeostasis.

29) Pepsin would not be found in the stomach if the _____ cells were destroyed.

- A) goblet
- B) parietal
- C) D cells
- D) chief or zymogenic

Answer: D

Section: 18.02

Topic: Microscopic anatomy of the digestive tract; Chemical digestion

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: N02.05e Identify the structure of a gastric gland including the location of the chief (zymogenic) cells, parietal (oxyntic) cells, enteroendocrine cells, and mucous cells, and discuss the functions of these different cell types.

30) Read the statements about protein digestion, and choose the incorrect statement.

- A) If HCl was missing, the stomach could not perform the initial steps of protein digestion.
- B) A medication that inhibits the formation of HCl would decrease protein breakdown.
- C) The low pH provided by HCl secretion allows the pepsin enzyme to be freed from pepsinogen enzymes.
- D) Protein digestion could be impacted by disease of both the stomach and the pancreas.

Answer: B

Section: 18.02

Topic: Chemical digestion

Bloom's: 3. Apply

Accessibility: Keyboard Navigation

HAPS Outcome: N06.03 Discuss the function, production, and regulation of secretion of hydrochloric acid (HCl).

31) Vitamin B12 is primarily absorbed in the _____.

- A) duodenum
- B) jejunum
- C) ileum
- D) cecum

Answer: C

Section: 18.02

Topic: Gross anatomy of the digestive tract; Processes of absorption

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: N02.05e Identify the structure of a gastric gland including the location of the chief (zymogenic) cells, parietal (oxyntic) cells, enteroendocrine cells, and mucous cells, and discuss the functions of these different cell types.; N07.02 Discuss the absorption of fat-soluble and water-soluble vitamins and the absorption of vitamin B12.

32) The _____ of the stomach and intestine secrete histamine and serotonin.

- A) G cells
- B) parietal cells
- C) enterochromaffin-like (ECL) cells
- D) chief cells

Answer: C

Section: 18.02

Topic: Microscopic anatomy of the digestive tract

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: N02.05e Identify the structure of a gastric gland including the location of the chief (zymogenic) cells, parietal (oxyntic) cells, enteroendocrine cells, and mucous cells, and discuss the functions of these different cell types.; N08.06 With respect to the following hormones or paracrine agents gastrin, cholecystokinin, secretin, glucose-dependent insulinotropic peptide, histamine, somatostatin, and motilin:

33) Pernicious anemia develops if there is a vitamin _____ deficiency.

- A) C
- B) B6
- C) B12
- D) D

Answer: C

Section: 18.02

Topic: Clinical applications of the digestive system

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: N02.05e Identify the structure of a gastric gland including the location of the chief (zymogenic) cells, parietal (oxyntic) cells, enteroendocrine cells, and mucous cells, and discuss the functions of these different cell types.; N07.02 Discuss the absorption of fat-soluble and water-soluble vitamins and the absorption of vitamin B12.; N10.01 Predict factors or situations affecting the digestive system that could disrupt homeostasis.

34) Long folds of the stomach's inner surface are called _____.

- A) plicae
- B) rugae
- C) gastric pits
- D) ghrelin

Answer: B

Section: 18.02

Topic: Gross anatomy of the digestive tract

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: N02.05c Discuss the significance of rugae.

35) The stomach churns food into a pasty material is called _____.

- A) a bolus
- B) chyme
- C) chyle
- D) saliva

Answer: B

Section: 18.02

Topic: Mechanical digestion

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: N05.03 Explain how volume, chemical composition, and osmolarity of the chyme affect motility in the stomach and in the duodenum.; N06.01b List the organs and structures of the digestive system that function in mechanical digestion and explain the details of the process for each.

36) If _____ were absent, intestinal absorption of vitamin B12 could not occur.

- A) vitamin D
- B) calcium
- C) intrinsic factor
- D) vitamin C

Answer: C

Section: 18.02

Topic: Processes of absorption

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: N02.05e Identify the structure of a gastric gland including the location of the chief (zymogenic) cells, parietal (oxyntic) cells, enteroendocrine cells, and mucous cells, and discuss the functions of these different cell types.; N07.02 Discuss the absorption of fat-soluble and water-soluble vitamins and the absorption of vitamin B12.

37) Somatostatin is produced in the stomach by _____ cells.

- A) goblet
- B) parietal
- C) G
- D) D

Answer: D

Section: 18.02

Topic: Microscopic anatomy of the digestive tract; Hormonal and neural regulation of digestive processes

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: N02.05e Identify the structure of a gastric gland including the location of the chief (zymogenic) cells, parietal (oxyntic) cells, enteroendocrine cells, and mucous cells, and discuss the functions of these different cell types.; N08.06 With respect to the following hormones or paracrine agents gastrin, cholecystokinin, secretin, glucose-dependent insulinotropic peptide, histamine, somatostatin, and motilin;; N08.06b State the target organ for each hormone or agent.

38) Histamine secretion by the stomach would be prevented by destruction of the _____ cells.

- A) D
- B) G
- C) chief
- D) enterochromaffin-like

Answer: D

Section: 18.02

Topic: Microscopic anatomy of the digestive tract

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: N02.05e Identify the structure of a gastric gland including the location of the chief (zymogenic) cells, parietal (oxyntic) cells, enteroendocrine cells, and mucous cells, and discuss the functions of these different cell types.; N08.06c Describe the action of each hormone or agent.

39) Antihistamines would directly limit the gastric secretion of _____.

- A) pepsinogen
- B) gastrin
- C) hydrochloric acid
- D) mucus

Answer: C

Section: 18.02

Topic: Microscopic anatomy of the digestive tract; Chemical digestion

Bloom's: 3. Apply

Accessibility: Keyboard Navigation

HAPS Outcome: N06.03 Discuss the function, production, and regulation of secretion of hydrochloric acid (HCl).

40) Acidic chyme is buffered by _____ secreted from the pancreas.

- A) mucus
- B) bicarbonate
- C) ammonia
- D) urea

Answer: B

Section: 18.02

Topic: Chemical digestion

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: N06.03 Discuss the function, production, and regulation of secretion of hydrochloric acid (HCl).

41) *Helicobacter pylori* is a bacterium associated with _____.

- A) peptic ulcers
- B) hiatal hernia
- C) acid reflux
- D) pancreatitis

Answer: A

Section: 18.02

Topic: Clinical applications of the digestive system

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: N10.01 Predict factors or situations affecting the digestive system that could disrupt homeostasis.

42) Which of the following disorders occurs as a result of acidic gastric juice traveling up into the esophagus?

- A) Gastroenteritis
- B) Gastroesophageal reflux disease
- C) Pernicious anemia
- D) Gastritis

Answer: B

Section: 18.02

Topic: Clinical applications of the digestive system

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: N02.04a Describe the structure and discuss the function of the upper esophageal and lower esophageal (cardiac) sphincters.; N10.01 Predict factors or situations affecting the digestive system that could disrupt homeostasis.

43) Pepsin would have the greatest activity _____.

- A) if someone fasted for hours prior to eating
- B) if someone ate a primarily carbohydrate meal
- C) when the pH of the chyme is greater than 3
- D) when the pH of the chyme is less than 3

Answer: D

Section: 18.02

Topic: Chemical digestion

Bloom's: 3. Apply

Accessibility: Keyboard Navigation

HAPS Outcome: N06.02d Discuss the activation of specific enzymes, where applicable.

44) Which of the following may be beneficial in treating gastric ulcers?

- A) Epinephrine
- B) H₂ histamine blockers
- C) Gastric inhibitory peptide
- D) Carboxypeptidase

Answer: B

Section: 18.02

Topic: Hormonal and neural regulation of digestive processes; Clinical applications of the digestive system

Bloom's: 3. Apply

Accessibility: Keyboard Navigation

HAPS Outcome: N06.03 Discuss the function, production, and regulation of secretion of hydrochloric acid (HCl).; N10.02 Predict the types of problems that would occur in the body if the digestive system could not maintain homeostasis.

45) Which hormone stimulates ECL cells to secrete histamine, which stimulates HCl release from parietal cells?

- A) Secretin
- B) CCK
- C) Gastrin
- D) Ghrelin

Answer: C

Section: 18.02

Topic: Microscopic anatomy of the digestive tract; Chemical digestion; Hormonal and neural regulation of digestive processes

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: N02.05e Identify the structure of a gastric gland including the location of the chief (zymogenic) cells, parietal (oxyntic) cells, enteroendocrine cells, and mucous cells, and discuss the functions of these different cell types.; N06.03 Discuss the function, production, and regulation of secretion of hydrochloric acid (HCl).; N08.06 With respect to the following hormones or paracrine agents gastrin, cholecystokinin, secretin, glucose-dependent insulinotropic peptide, histamine, somatostatin, and motilin.; N08.06c Describe the action of each hormone or agent.

46) Choose the structure or substance that is NOT a barrier to acid and pepsin damage in the stomach.

- A) Adherent layer of mucus
- B) Bicarbonate
- C) Gap junctions between epithelial cells
- D) Rapid turnover of epithelial cells

Answer: C

Section: 18.02

Topic: Microscopic anatomy of the digestive tract

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: N02.05b Identify the structure and discuss the function of the cardiac region, the fundus, the body and the pyloric region of the stomach.

47) Histamine release will cause more acid to be released in the stomach.

Answer: TRUE

Section: 18.02

Topic: Hormonal and neural regulation of digestive processes

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: N08.06 With respect to the following hormones or paracrine agents gastrin, cholecystokinin, secretin, glucose-dependent insulinotropic peptide, histamine, somatostatin, and motilin;; N08.06c Describe the action of each hormone or agent.

48) Sympathetic nerve fibers can cause the release of HCl from parietal cells.

Answer: FALSE

Section: 18.02

Topic: Hormonal and neural regulation of digestive processes

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: N06.03 Discuss the function, production, and regulation of secretion of hydrochloric acid (HCl).; N08.02 Discuss regulation of reflexes by the enteric nervous system and the parasympathetic nervous system.

49) Bicarbonate that protects the duodenum from peptic ulcers comes from all of the following EXCEPT _____.

- A) adherent layer of mucus
- B) Brunner's cells
- C) stomach
- D) pancreatic juice

Answer: C

Section: 18.02

Topic: Microscopic anatomy of the digestive tract; Clinical applications of the digestive system

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: N09.01 Provide specific examples to demonstrate how the digestive system responds to maintain homeostasis in the body.

50) Most of the food is digested and absorbed through the wall of the stomach.

Answer: FALSE

Section: 18.02

Topic: General functions of the digestive system; Processes of absorption

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: N06.02b List the organs and structures of the digestive system that function in enzymatic hydrolysis.

51) The first line of defense in the stomach against damaging acid and pepsin is the _____.

- A) tight junctions of epithelial cells
- B) rapid rate of epithelial cell replacement
- C) adherent layer of mucus
- D) release of gastrin

Answer: C

Section: 18.02

Topic: Microscopic anatomy of the digestive tract

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: N02.05e Identify the structure of a gastric gland including the location of the chief (zymogenic) cells, parietal (oxyntic) cells, enteroendocrine cells, and mucous cells, and discuss the functions of these different cell types.

52) What commonly ingested substances are absorbed through the stomach wall?

- A) Water and alcohol
- B) Antacid and water
- C) Alcohol and aspirin
- D) Penicillin and aspirin

Answer: C

Section: 18.02

Topic: Processes of absorption

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: N07.01a List the organs and specific structures involved in the absorption of each of these types of nutrient.

53) Surface area in the small intestine is increased by _____.

- A) rugae
- B) villi
- C) plicae circularis
- D) microvilli

Answer: A

Section: 18.03

Topic: Microscopic anatomy of the digestive tract; Processes of absorption

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: N02.06b Identify and discuss the histology and functions of the plicae circulares, villi, and microvilli.

54) Absorbed lipids are initially transported by the lymphatic system.

Answer: TRUE

Section: 18.03

Topic: Processes of absorption; Metabolism of lipids

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: N07.01b Explain the processes involved in absorption of each type of nutrient.

55) Protein digestion would decrease if the brush border in the small intestine were destroyed.

Answer: FALSE

Section: 18.03

Topic: Chemical digestion

Bloom's: 4. Analyze

Accessibility: Keyboard Navigation

HAPS Outcome: N06.02e List the substrates and products of enzymatic hydrolysis for each enzyme.

56) What is the function of Paneth cells of the small intestine?

- A) Produce mucus
- B) Divide by mitosis to make new mucosa cells
- C) Produce lysozyme and defensins
- D) Produce digestive enzymes

Answer: C

Section: 18.03

Topic: Chemical digestion

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: N02.06c Identify Brunner's glands (duodenal glands) in the duodenum and Crypts of Leiberkuhn (intestinal glands) in all portions of the small intestine, and discuss the function of these glands.

57) What is the function of enterokinase secreted by the brush border?

- A) Activates the protein-digesting enzyme trypsin
- B) Breaks down dipeptides
- C) Causes the stomach to produce gastrin
- D) Causes release of pancreatic digestive enzymes

Answer: A

Section: 18.03

Topic: Chemical digestion

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: N06.02d Discuss the activation of specific enzymes, where applicable.

58) The majority of hydrolysis of disaccharides occurs by the actions of enzymes found in the _____.

- A) pancreatic juice
- B) brush border of the small intestine
- C) saliva
- D) gastric mucosa

Answer: B

Section: 18.03

Topic: Chemical digestion

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: N06.02b List the organs and structures of the digestive system that function in enzymatic hydrolysis.; N06.02c List the enzymes used in enzymatic hydrolysis.

59) Stress would cause GI motility and secretions to be _____.

- A) increased
- B) decreased
- C) unchanged

Answer: B

Section: 18.03

Topic: Hormonal and neural regulation of digestive processes

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: N09.01 Provide specific examples to demonstrate how the digestive system responds to maintain homeostasis in the body.

60) Slow waves of the intestine are produced by what type of cells?

- A) Gastric
- B) Microflora
- C) SXR
- D) Cajal

Answer: D

Section: 18.03

Topic: Mechanical digestion

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: N05.02 Define the terms peristalsis, segmentation, migrating myoelectric complex, and mass movement, and discuss the role that these activities play in the function of various regions of the alimentary canal.

61) Slow wave depolarization triggers depolarization of smooth muscle by opening voltage-gated _____ channels.

- A) K^+
- B) Na^+
- C) Ca^{2+}
- D) Ach

Answer: C

Section: 18.03

Topic: Mechanical digestion; Hormonal and neural regulation of digestive processes

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: N05.02 Define the terms peristalsis, segmentation, migrating myoelectric complex, and mass movement, and discuss the role that these activities play in the function of various regions of the alimentary canal.

62) The mixing movement of the small intestine is called _____.

- A) deglutition
- B) segmentation
- C) micturition
- D) peristalsis

Answer: B

Section: 18.03

Topic: General functions of the digestive system

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: N05.02 Define the terms peristalsis, segmentation, migrating myoelectric complex, and mass movement, and discuss the role that these activities play in the function of various regions of the alimentary canal.

63) The _____ is NOT a section of the small intestine.

- A) ileum
- B) cecum
- C) jejunum
- D) duodenum

Answer: B

Section: 18.03

Topic: Gross anatomy of the digestive tract

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: N02.06a Identify the location and discuss the relative length and the functions of the duodenum, jejunum, and ileum.

64) The primary function of the large intestine is _____.

- A) water and electrolyte reabsorption
- B) mineral absorption
- C) hormone degradation
- D) degrading toxins

Answer: A

Section: 18.04

Topic: General functions of the digestive system; Gross anatomy of the digestive tract

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: N02.07b Identify the location and discuss the functions of the cecum and appendix, the ascending, transverse, descending, and sigmoid colon, the rectum, and the anus.

65) The outer surface bulges of the large intestine are called _____.

- A) crypts
- B) cecum
- C) haustra
- D) colon

Answer: C

Section: 18.04

Topic: Gross anatomy of the digestive tract

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: N02.07c Identify and discuss the functions of teniae coli, haustra, and epiploic appendages

66) Which of the following is NOT a function of intestinal microbiota?

- A) Production of B vitamins
- B) Ferment indigestible contents of the chyme
- C) Production of vitamin K
- D) Hydrolyze proteins

Answer: D

Section: 18.04

Topic: Microscopic anatomy of the digestive tract; Chemical digestion

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: N02.07b Identify the location and discuss the functions of the cecum and appendix, the ascending, transverse, descending, and sigmoid colon, the rectum, and the anus.

67) Excess use of antibiotics can kill the normal intestinal microflora and open a niche for pathogenic bacteria.

Answer: TRUE

Section: 18.04

Topic: Clinical applications of the digestive system

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: N10.01 Predict factors or situations affecting the digestive system that could disrupt homeostasis.

68) Normal levels of intestinal microbiota help protect us from pathogenic bacteria.

Answer: TRUE

Section: 18.04

Topic: General functions of the digestive system; Clinical applications of the digestive system

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: N02.07b Identify the location and discuss the functions of the cecum and appendix, the ascending, transverse, descending, and sigmoid colon, the rectum, and the anus.

69) Movement of water out of the large intestine is by _____.

A) active transport

B) cotransport

C) osmosis

D) All of the choices are correct.

Answer: C

Section: 18.04

Topic: Processes of absorption

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: N02.07b Identify the location and discuss the functions of the cecum and appendix, the ascending, transverse, descending, and sigmoid colon, the rectum, and the anus.

70) Medications that treat constipation should include ions such as sodium and magnesium, since water will follow these ions into the intestinal lumen via osmosis.

Answer: TRUE

Section: 18.04

Topic: Processes of absorption; Mechanisms for movement across cell membranes

Bloom's: 3. Apply

Accessibility: Keyboard Navigation

HAPS Outcome: N02.07b Identify the location and discuss the functions of the cecum and appendix, the ascending, transverse, descending, and sigmoid colon, the rectum, and the anus.; N09.02 Explain how the digestive system relates to other body systems to maintain homeostasis.

71) In addition to its effects on kidney tubules, aldosterone affects salt and water absorption in the small intestine.

Answer: TRUE

Section: 18.04

Topic: Hormonal and neural regulation of digestive processes; Hormones from other endocrine glands and their functions

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: N02.07b Identify the location and discuss the functions of the cecum and appendix, the ascending, transverse, descending, and sigmoid colon, the rectum, and the anus.; N09.02 Explain how the digestive system relates to other body systems to maintain homeostasis.

72) The process of waste removal is called _____.

A) defecation

B) mastication

C) deglutition

D) segmentation

Answer: A

Section: 18.04

Topic: General functions of the digestive system

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: N05.04a Describe the defecation reflex and the function of the internal and external anal sphincters.

73) Bile is produced by the gallbladder.

Answer: FALSE

Section: 18.05

Topic: Gross anatomy of accessory digestive glands and organs

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: N06.04b List the organs and structures of the digestive system that function in the process of emulsification.

74) Hepatic plates are separated by large capillary spaces called _____.

- A) hepatocytes
- B) lobules
- C) sinusoids
- D) portal systems

Answer: C

Section: 18.05

Topic: Gross anatomy of accessory digestive glands and organs

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: N03.02d Identify the histological components of a liver lobule (including hepatocytes, hepatic sinusoids, Kupffer cells, bile canaliculi, central vein, and the components of a hepatic triad) and discuss the function of each.

75) Which condition is characterized by a large number of liver lobules being destroyed and replaced by permanent, scar-like connective tissue?

- A) Jaundice
- B) Hepatitis
- C) Cholecystitis
- D) Cirrhosis

Answer: D

Section: 18.05

Topic: Gross anatomy of accessory digestive glands and organs; Clinical applications of the digestive system

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: N03.02d Identify the histological components of a liver lobule (including hepatocytes, hepatic sinusoids, Kupffer cells, bile canaliculi, central vein, and the components of a hepatic triad) and discuss the function of each.; N05.04e Explain the Valsalva maneuver and the effects it has on the process of defecation and on the cardiovascular system.; N10.01 Predict factors or situations affecting the digestive system that could disrupt homeostasis.

76) Which of the following are hepatic phagocytic cells of the reticuloendothelial system?

- A) Hepatocytes
- B) Kupffer cells
- C) Langerhans cells
- D) Merkel's cells

Answer: B

Section: 18.05

Topic: Gross anatomy of accessory digestive glands and organs

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: N03.02d Identify the histological components of a liver lobule (including hepatocytes, hepatic sinusoids, Kupffer cells, bile canaliculi, central vein, and the components of a hepatic triad) and discuss the function of each.

77) Blood from the digestive organs enters general circulation and eventually reaches the liver for processing.

Answer: FALSE

Section: 18.05

Topic: Gross anatomy of accessory digestive glands and organs; Hepatic portal blood circulation

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: N03.02c Identify the hepatic artery, hepatic portal vein, and hepatic vein and discuss the function of each of those blood vessels.

78) Bile is produced by _____.

- A) Kupffer cells
- B) gall bladder cells
- C) hepatocytes
- D) sinusoids

Answer: C

Section: 18.05

Topic: Gross anatomy of accessory digestive glands and organs

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: N03.02d Identify the histological components of a liver lobule (including hepatocytes, hepatic sinusoids, Kupffer cells, bile canaliculi, central vein, and the components of a hepatic triad) and discuss the function of each.

79) As bile is produced, it drains into _____.

- A) bile canaliculi
- B) hepatic veins
- C) the central vein
- D) sinusoids

Answer: A

Section: 18.05

Topic: Gross anatomy of accessory digestive glands and organs

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: N03.02d Identify the histological components of a liver lobule (including hepatocytes, hepatic sinusoids, Kupffer cells, bile canaliculi, central vein, and the components of a hepatic triad) and discuss the function of each.

80) A _____ has the following pattern of circulation: capillaries -> veins -> capillaries -> veins.

- A) portal system
- B) sinusoid
- C) lobule
- D) glomerulus

Answer: A

Section: 18.05

Topic: Gross anatomy of accessory digestive glands and organs; Hepatic portal blood circulation

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: N03.02c Identify the hepatic artery, hepatic portal vein, and hepatic vein and discuss the function of each of those blood vessels.

81) All of the substances listed have an enterohepatic circulation EXCEPT _____.

- A) penicillin
- B) cholesterol
- C) tetracycline
- D) bilirubin

Answer: D

Section: 18.05

Topic: Processes of absorption

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: N07.03 Discuss the enterohepatic circulation of bile salts.

82) The enterohepatic circulation is between the _____ and _____.

- A) liver; stomach
- B) liver; pancreas
- C) liver; intestine
- D) liver; gallbladder

Answer: C

Section: 18.05

Topic: Gross anatomy of accessory digestive glands and organs

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: N07.03 Discuss the enterohepatic circulation of bile salts.

83) The liver is able to produce ketone bodies from fatty acids; therefore, it is critical for helping Type I diabetics remain stable.

Answer: TRUE

Section: 18.05

Topic: General functions of the digestive system; Metabolic roles of body organs

Bloom's: 4. Analyze

Accessibility: Keyboard Navigation

HAPS Outcome: O04.01 Describe the role of the liver in metabolism.

84) A disease that inhibits hepatic function would cause disorders of metabolism, but have no impact on blood clotting.

Answer: FALSE

Section: 18.05

Topic: General functions of the digestive system; Metabolic roles of body organs

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: O04.01 Describe the role of the liver in metabolism.

85) Cholesterol is a critical component in the formation of bile.

Answer: TRUE

Section: 18.05

Topic: Microscopic anatomy of accessory digestive glands and organs; Metabolism of lipids

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: N03.02d Identify the histological components of a liver lobule (including hepatocytes, hepatic sinusoids, Kupffer cells, bile canaliculi, central vein, and the components of a hepatic triad) and discuss the function of each.

86) Inadequate bile secretion will limit emulsification of fats.

Answer: TRUE

Section: 18.05

Topic: Microscopic anatomy of accessory digestive glands and organs; Chemical digestion

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: N06.04a Define emulsification and describe the process.

87) Derivatives of _____ give feces a brown color.

A) urobilinogen

B) bilirubin

C) cholesterol

D) guanylin

Answer: A

Section: 18.05

Topic: Processes of absorption

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: N07.03 Discuss the enterohepatic circulation of bile salts.

88) Which of the following is NOT a major constituent of bile?

A) Cholesterol

B) Bilirubin

C) Urea

D) Lecithin

Answer: C

Section: 18.05

Topic: Chemical digestion

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: N06.04a Define emulsification and describe the process.

89) Bile pigment is a derivative of _____.

- A) heme group without iron
- B) iron
- C) globin part of hemoglobin
- D) cholesterol

Answer: A

Section: 18.05

Topic: Processes of absorption

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: N07.03 Discuss the enterohepatic circulation of bile salts.

90) Conjugated bilirubin _____.

- A) forms when bilirubin is combined with bile.
- B) is a water soluble molecule
- C) is converted into urobilirubin in the stomach
- D) is produced in the small intestine

Answer: B

Section: 18.05

Topic: Chemical digestion

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: N06.04a Define emulsification and describe the process.

91) Bile salts are derivatives of _____.

- A) sodium chloride
- B) hemoglobin
- C) bilirubin
- D) cholesterol

Answer: D

Section: 18.05

Topic: Chemical digestion

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: N06.04a Define emulsification and describe the process.

92) What role do bile salts play in digestion?

- A) Emulsify lipids for digestion by enzymes
- B) Gives color to the feces
- C) Needed for water reabsorption
- D) They play no role in digestion.

Answer: A

Section: 18.05

Topic: Chemical digestion

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: N06.04a Define emulsification and describe the process.

93) The liver will detoxify ammonia by converting it into _____.

- A) uric acid
- B) ammonium ions
- C) urea
- D) amino acids

Answer: C

Section: 18.05

Topic: Metabolic roles of body organs

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: O04.01 Describe the role of the liver in metabolism.

94) Micelles, made of bile salts, have hydrophilic and hydrophobic regions that allow them to emulsify fats and dissolve in water.

Answer: TRUE

Section: 18.05

Topic: Chemical digestion

Bloom's: 1. Remember; 4. Analyze

Accessibility: Keyboard Navigation

HAPS Outcome: N06.04a Define emulsification and describe the process.

95) Converting glucose into glycogen is the process of _____.

- A) glycogenesis
- B) glycogenolysis
- C) gluconeogenesis
- D) lipogenesis

Answer: A

Section: 18.05

Topic: Metabolic roles of body organs; Metabolism of carbohydrates

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: O04.01 Describe the role of the liver in metabolism.; O03.01e Describe the processes of glycogenesis, glycogenolysis, and gluconeogenesis, including the substrates and products of each.

96) Clotting factors are produced by the _____.

- A) liver
- B) pancreas
- C) stomach
- D) duodenum

Answer: A

Section: 18.05

Topic: General functions of the digestive system; Metabolic roles of body organs; Hemostasis, including coagulation of blood

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: O04.01 Describe the role of the liver in metabolism.

97) Choose the substance NOT produced by the liver.

- A) Hydroxylated steroid hormones
- B) Uric acid
- C) Digestive enzymes
- D) Bilirubin

Answer: C

Section: 18.05

Topic: General functions of the digestive system; Metabolic roles of body organs

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: O04.01 Describe the role of the liver in metabolism.

98) The conjugation of nonpolar compounds in the liver makes them _____ and water _____.

- A) polar; soluble
- B) polar; insoluble
- C) cationic; soluble
- D) cationic; insoluble

Answer: A

Section: 18.05

Topic: Chemical digestion

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: N06.04a Define emulsification and describe the process.

99) Jaundice is created by high blood levels of _____ when the bile duct is blocked by gallstones.

- A) free bilirubin
- B) urobilinogen
- C) conjugated bilirubin
- D) None of the choices are correct.

Answer: C

Section: 18.05

Topic: Gross anatomy of accessory digestive glands and organs; Clinical applications of the digestive system

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: N10.01 Predict factors or situations affecting the digestive system that could disrupt homeostasis.; N03.02e Identify the hepatic duct, cystic duct, gallbladder, common bile duct, sphincter of hepatopancreatic ampulla (ampulla of Vater and sphincter of Oddi) and discuss the roles of those structures in the flow of bile.

100) Bile is forced up the cystic duct through the closing of the _____.

- A) sphincter of Oddi
- B) lower esophageal sphincter
- C) pyloric sphincter
- D) ileocecal valve

Answer: A

Section: 18.05

Topic: Gross anatomy of accessory digestive glands and organs

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: N03.02e Identify the hepatic duct, cystic duct, gallbladder, common bile duct, sphincter of hepatopancreatic ampulla (ampulla of Vater and sphincter of Oddi) and discuss the roles of those structures in the flow of bile.

101) Physiological jaundice of the newborn is due to high levels of _____.

- A) free bilirubin
- B) urobilinogen
- C) conjugated bilirubin
- D) None of the choices are correct.

Answer: A

Section: 18.05

Topic: Clinical applications of the digestive system

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: O04.01 Describe the role of the liver in metabolism.

102) Choose the physiologic process that should not be compromised by disease of the liver.

- A) Storage of glucose and fatty acids throughout the body for long-term energy reserves
- B) Formation of steroid hormones
- C) Hydrolysis of lactose into lactase and sucrose
- D) Maintenance of blood glucose levels during fasting

Answer: C

Section: 18.05

Topic: Metabolism of lipids; Metabolic roles of body organs; Metabolism of carbohydrates

Bloom's: 3. Apply

Accessibility: Keyboard Navigation

HAPS Outcome: O04.01 Describe the role of the liver in metabolism.

103) Zymogens are inactive forms of _____ enzymes.

- A) stomach
- B) liver
- C) pancreatic
- D) small intestine

Answer: C

Section: 18.05

Topic: Chemical digestion

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: N06.02d Discuss the activation of specific enzymes, where applicable.

104) Trypsin is activated by the enzyme _____.

- A) enterokinase
- B) lipase
- C) lactase
- D) carboxypeptidase

Answer: A

Section: 18.05

Topic: Chemical digestion

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: N06.02d Discuss the activation of specific enzymes, where applicable.

105) Inhibition of exocrine pancreatic secretions would result in _____.

- A) decreased insulin secretion following meals
- B) decreased bile synthesis and secretion
- C) presence of an acidic chyme
- D) stimulation of enterokinase activity

Answer: C

Section: 18.05

Topic: Chemical digestion

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: N06.02b List the organs and structures of the digestive system that function in enzymatic hydrolysis.

106) Mutation of the gene encoding for cholecystokinin would limit pancreatic bicarbonate secretion.

Answer: FALSE

Section: 18.05

Topic: Chemical digestion

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: N06.02d Discuss the activation of specific enzymes, where applicable.

107) Which of the following zymogens is activated by trypsin in the small intestine?

- A) Lipase
- B) Carboxypeptidase
- C) Ribonuclease
- D) Amylase

Answer: B

Section: 18.05

Topic: Chemical digestion

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: N06.02d Discuss the activation of specific enzymes, where applicable.

108) Where does the bicarbonate secreted by the pancreas come from?

- A) Bicarbonate in the blood
- B) CO₂ in the blood
- C) Acini cells
- D) Pancreatic islets

Answer: B

Section: 18.05

Topic: Microscopic anatomy of accessory digestive glands and organs; Chemical digestion

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: N06.02f Discuss the mechanisms used to regulate secretion and/or activation of each enzyme.

109) Removal of the proximal portion of the small intestine should not affect _____, given that this is stimulated by _____.

- A) HCl secretion; cholecystokinin
- B) insulin secretion; gastric inhibitory peptide
- C) pepsinogen secretion; gastrin
- D) bile release; cholecystokinin

Answer: C

Section: 18.06

Topic: Microscopic anatomy of accessory digestive glands and organs; Chemical digestion

Bloom's: 4. Analyze

Accessibility: Keyboard Navigation

HAPS Outcome: N06.02b List the organs and structures of the digestive system that function in enzymatic hydrolysis.

- 110) Which of the following is NOT an effect of CCK?
- A) Stimulates secretion of water and bicarbonate rich pancreatic juice
 - B) Stimulates contraction of the gall bladder
 - C) Inhibits gastric motility
 - D) Stimulates secretion of pancreatic juice rich in enzymes

Answer: A

Section: 18.06

Topic: Hormonal and neural regulation of digestive processes

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: N08.06c Describe the action of each hormone or agent.

- 111) Which of the following is NOT an effect of gastrin?

- A) Stimulates parietal cells to secrete HCl
- B) Stimulates chief cells to secrete pepsinogen
- C) Stimulates secretion of pancreatic juice enzymes
- D) Maintains structure of gastric mucosa

Answer: C

Section: 18.06

Topic: Hormonal and neural regulation of digestive processes

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: N08.06 With respect to the following hormones or paracrine agents gastrin, cholecystokinin, secretin, glucose-dependent insulintropic peptide, histamine, somatostatin, and motilin;; N08.06c Describe the action of each hormone or agent.

- 112) The first of the three phases of extrinsic control of gastric function is the gastric phase.

Answer: FALSE

Section: 18.06

Topic: Hormonal and neural regulation of digestive processes

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: N08.04 Explain the effect of the cephalic phase, gastric phase, and intestinal phase on the functions of the stomach and give examples for each phase.

113) The vagus nerve stimulates gastrin secretion during the cephalic phase of gastric function.

Answer: TRUE

Section: 18.06

Topic: Hormonal and neural regulation of digestive processes; Functions of the autonomic nervous system

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: N08.02 Discuss regulation of reflexes by the enteric nervous system and the parasympathetic nervous system.; N08.04 Explain the effect of the cephalic phase, gastric phase, and intestinal phase on the functions of the stomach and give examples for each phase.

114) The major stimulus for the secretion of HCl during the cephalic phase of gastric regulation is _____.

A) the hypothalamus

B) vagal stimulation of chief cells

C) release of histamine by ECL cells

D) vagal stimulation of parietal cells

Answer: C

Section: 18.06

Topic: Chemical digestion; Hormonal and neural regulation of digestive processes

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: N08.04 Explain the effect of the cephalic phase, gastric phase, and intestinal phase on the functions of the stomach and give examples for each phase.

115) A small meal composed of one macronutrient would cause less gastric secretion than a large, mixed macronutrient meal.

Answer: TRUE

Section: 18.06

Topic: Hormonal and neural regulation of digestive processes

Bloom's: 3. Apply

Accessibility: Keyboard Navigation

HAPS Outcome: N08.02 Discuss regulation of reflexes by the enteric nervous system and the parasympathetic nervous system.

116) The negative feedback control of HCl secretion in the gastric phase of gastric regulation is mainly by _____ secretion.

- A) decline in gastrin
- B) increase in gastrin
- C) increase in somatostatin
- D) Both decrease in gastrin secretion and increase in somatostatin secretion are correct.

Answer: D

Section: 18.06

Topic: Chemical digestion; Hormonal and neural regulation of digestive processes

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: N06.03 Discuss the function, production, and regulation of secretion of hydrochloric acid (HCl).; N08.04 Explain the effect of the cephalic phase, gastric phase, and intestinal phase on the functions of the stomach and give examples for each phase.; N08.06 With respect to the following hormones or paracrine agents gastrin, cholecystokinin, secretin, glucose-dependent insulinotropic peptide, histamine, somatostatin, and motilin.; N08.06c Describe the action of each hormone or agent.

117) Gastric hydrochloric acid secretion is regulated through both negative and positive feedback mechanisms.

Answer: TRUE

Section: 18.06

Topic: Chemical digestion; Hormonal and neural regulation of digestive processes

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: N06.03 Discuss the function, production, and regulation of secretion of hydrochloric acid (HCl).; N08.04 Explain the effect of the cephalic phase, gastric phase, and intestinal phase on the functions of the stomach and give examples for each phase.

118) Amino acids and peptides in the stomach lumen stimulate acid secretion during the _____ phase of gastric secretion.

- A) gastric
- B) cephalic
- C) hepatic
- D) intestinal

Answer: A

Section: 18.06

Topic: Chemical digestion; Hormonal and neural regulation of digestive processes

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: N06.03 Discuss the function, production, and regulation of secretion of hydrochloric acid (HCl).; N08.04 Explain the effect of the cephalic phase, gastric phase, and intestinal phase on the functions of the stomach and give examples for each phase.

119) Secretion of insulin from the pancreas is increased in response to increased _____.

- A) secretin
- B) GIP
- C) guanylin
- D) gastrin

Answer: B

Section: 18.06

Topic: Processes of absorption; Hormonal and neural regulation of digestive processes

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: N08.05 Explain the effect of the cephalic phase, gastric phase, and intestinal phase on the functions of the small intestine and give examples for each phase.; O03.01f

Describe the role of hormones (such as cortisol, growth hormone, thyroid hormone, insulin, glucagon and norepinephrine) in regulation of carbohydrate catabolism and anabolism.

120) During the intestinal phase regulating gastric function, _____.

- A) the vagus nerve stimulates gastrin secretion
- B) stomach distension stimulates acid secretion
- C) gastric gland secretions are inhibited
- D) gastric emptying is inhibited

Answer: C

Section: 18.06

Topic: Chemical digestion; Hormonal and neural regulation of digestive processes

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: N08.02 Discuss regulation of reflexes by the enteric nervous system and the parasympathetic nervous system.; N08.04 Explain the effect of the cephalic phase, gastric phase, and intestinal phase on the functions of the stomach and give examples for each phase.

121) The arrival of chyme into the duodenum begins the _____ phase of stomach function.

- A) cephalic
- B) gastric
- C) intestinal
- D) hepatic

Answer: C

Section: 18.06

Topic: Hormonal and neural regulation of digestive processes

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: N08.04 Explain the effect of the cephalic phase, gastric phase, and intestinal phase on the functions of the stomach and give examples for each phase.

122) Secretion of enterogastrone is stimulated by _____ in the chyme.

- A) protein
- B) acid
- C) glucose
- D) fats

Answer: D

Section: 18.06

Topic: Hormonal and neural regulation of digestive processes

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: N08.04 Explain the effect of the cephalic phase, gastric phase, and intestinal phase on the functions of the stomach and give examples for each phase.

123) Enterogastrone will _____ gastric function.

- A) stimulate
- B) inhibit
- C) have no effect on

Answer: B

Section: 18.06

Topic: Hormonal and neural regulation of digestive processes

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: N08.04 Explain the effect of the cephalic phase, gastric phase, and intestinal phase on the functions of the stomach and give examples for each phase.

124) The _____ reflex inhibits gastric motility.

- A) gastroileal
- B) GLP-1
- C) ileogastric
- D) GIP

Answer: C

Section: 18.06

Topic: Mechanical digestion; Hormonal and neural regulation of digestive processes

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: N08.04 Explain the effect of the cephalic phase, gastric phase, and intestinal phase on the functions of the stomach and give examples for each phase.

125) The _____ reflex stimulates increased gastrin activity and increased movement of chyme into the duodenum.

- A) gastroileal
- B) GLP-1
- C) ileogastric
- D) GIP

Answer: A

Section: 18.06

Topic: Hormonal and neural regulation of digestive processes

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: N08.04 Explain the effect of the cephalic phase, gastric phase, and intestinal phase on the functions of the stomach and give examples for each phase.

126) Sensory neurons within intestinal plexuses that travel in the vagus nerve to the CNS are called _____.

- A) extrinsic afferents
- B) intrinsic afferents
- C) paracrine regulators
- D) myenteric afferents

Answer: A

Section: 18.06

Topic: Hormonal and neural regulation of digestive processes

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: N08.01 List the components of both a short reflex and a long reflex in the digestive system.; N08.02 Discuss regulation of reflexes by the enteric nervous system and the parasympathetic nervous system.

127) Peristalsis within the intestines is regulated by the _____ nervous system.

- A) sympathetic
- B) parasympathetic
- C) enteric
- D) somatic

Answer: C

Section: 18.06

Topic: Mechanical digestion; Hormonal and neural regulation of digestive processes

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: N05.02 Define the terms peristalsis, segmentation, migrating myoelectric complex, and mass movement, and discuss the role that these activities play in the function of various regions of the alimentary canal.; N08.02 Discuss regulation of reflexes by the enteric nervous system and the parasympathetic nervous system.

128) The acidic chyme entering the duodenum initiates all of the following actions EXCEPT the _____.

- A) intestinal phase of gastric function
- B) release of serotonin from the duodenum
- C) release of bicarbonate from the pancreas
- D) release of bicarbonate into bile

Answer: A

Section: 18.06

Topic: Chemical digestion; Hormonal and neural regulation of digestive processes

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: N08.05 Explain the effect of the cephalic phase, gastric phase, and intestinal phase on the functions of the small intestine and give examples for each phase.

129) Which of the following is NOT true about CCK (cholecystokinin)?

- A) Released in response to fat and protein in the chyme
- B) Stimulates the production of pancreatic digestive enzymes
- C) Uses cyclic AMP as the second messenger to pancreatic acinar cells
- D) Controlled through a positive feedback loop

Answer: C

Section: 18.06

Topic: Chemical digestion; Hormonal and neural regulation of digestive processes

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: N08.06 With respect to the following hormones or paracrine agents gastrin, cholecystokinin, secretin, glucose-dependent insulinotropic peptide, histamine, somatostatin, and motilin;; N08.06c Describe the action of each hormone or agent.

130) Atrophy of the pancreatic acinar cells could occur in response to _____.

- A) increased gastrin secretion
- B) decreased sympathetic stimulation
- C) decreased cholecystokinin secretion
- D) increased secretin secretion

Answer: C

Section: 18.06

Topic: Chemical digestion; Clinical applications of the digestive system

Bloom's: 3. Apply

Accessibility: Keyboard Navigation

HAPS Outcome: N08.06 With respect to the following hormones or paracrine agents gastrin, cholecystokinin, secretin, glucose-dependent insulinotropic peptide, histamine, somatostatin, and motilin:

131) GI tract hormones can affect the same organs that secrete them.

Answer: TRUE

Section: 18.06

Topic: Hormonal and neural regulation of digestive processes

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: N08.06b State the target organ for each hormone or agent.

132) Digestion of starch starts in the stomach.

Answer: FALSE

Section: 18.07

Topic: Chemical digestion

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: N06.02b List the organs and structures of the digestive system that function in enzymatic hydrolysis.

133) The enzyme with the most basic pH optimum is _____.

A) pancreatic lipase

B) pepsin

C) maltase

D) salivary amylase

Answer: A

Section: 18.07

Topic: Chemical digestion

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: N06.02c List the enzymes used in enzymatic hydrolysis.

134) In which of the following areas does carbohydrate digestion occur?

A) Mouth and stomach

B) Duodenum and pancreas

C) Stomach and pancreas

D) Mouth and duodenum

Answer: D

Section: 18.07

Topic: Gross anatomy of the digestive tract; Chemical digestion

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: N06.02b List the organs and structures of the digestive system that function in enzymatic hydrolysis.

135) Most of the glucose is absorbed in the epithelial cells of the small intestine by _____.

- A) simple diffusion
- B) secondary active transport with Na⁺
- C) osmosis
- D) phagocytosis

Answer: B

Section: 18.07

Topic: Processes of absorption; Mechanisms for movement across cell membranes

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: N07.01b Explain the processes involved in absorption of each type of nutrient.

136) The enzymes for digestion of carbohydrates come from all of the following EXCEPT the _____.

- A) pancreas
- B) duodenum
- C) liver
- D) salivary glands

Answer: C

Section: 18.07

Topic: Gross anatomy of the digestive tract; Chemical digestion

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: N06.02b List the organs and structures of the digestive system that function in enzymatic hydrolysis.

137) Most protein digestion occurs in the _____.

- A) mouth and esophagus
- B) stomach and duodenum
- C) duodenum and jejunum
- D) pancreas and duodenum

Answer: C

Section: 18.07

Topic: Gross anatomy of the digestive tract; Chemical digestion

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: N06.02b List the organs and structures of the digestive system that function in enzymatic hydrolysis.

- 138) Free amino acids are absorbed into the blood stream by _____.
- A) simple diffusion
 - B) cotransport with H⁺
 - C) facilitated diffusion
 - D) cotransport with Na⁺

Answer: D

Section: 18.07

Topic: Processes of absorption; Mechanisms for movement across cell membranes

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: N07.01a List the organs and specific structures involved in the absorption of each of these types of nutrient.

- 139) Lipid digestion and absorption requires the coordinated actions of _____ and _____.
- A) hydrochloric acid; pepsin
 - B) bile; bicarbonate
 - C) lipase; bile
 - D) water; bile

Answer: C

Section: 18.07

Topic: Chemical digestion

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: N06.04a Define emulsification and describe the process.

- 140) If plasma levels of _____ were low, excessive cholesterol may be deposited throughout the body tissues, and cardiovascular risk could increase.
- A) high-density lipoprotein
 - B) low-density lipoprotein
 - C) very low-density lipoprotein
 - D) medium-density lipoprotein

Answer: A

Section: 18.07

Topic: Processes of absorption; Metabolism of lipids

Bloom's: 3. Apply

Accessibility: Keyboard Navigation

HAPS Outcome: N07.01b Explain the processes involved in absorption of monosaccharides, peptides and amino acids, and fatty acids and monoglycerides.

141) Cholesterol produced by the liver is transported in the blood as _____ lipoproteins.

- A) high-density
- B) low-density
- C) very low-density
- D) medium-density

Answer: C

Section: 18.07

Topic: Processes of absorption; Metabolism of lipids

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: N07.01b Explain the processes involved in absorption of monosaccharides, peptides and amino acids, and fatty acids and monoglycerides.

142) Choose the molecule that is correctly tied to its digestion or function.

- A) Triglycerides: Ultimately enters the venous system
- B) Mixed micelles: Digestion would be impacted by brush border destruction
- C) Chylomicrons: Reformed within the epithelial cells
- D) Protease: Essential for hydrolysis of triglycerides

Answer: B

Section: 18.07

Topic: Chemical digestion; Processes of absorption

Bloom's: 3. Apply

Accessibility: Keyboard Navigation

HAPS Outcome: N06.05b List the organs and structures of the digestive system that function in the process of emulsification.; N07.01b Explain the processes involved in absorption of monosaccharides, peptides and amino acids, and fatty acids and monoglycerides.

143) Protection against atherosclerosis is believed to be associated with an elevated _____.

- A) HDL-cholesterol
- B) LDL-cholesterol
- C) total cholesterol
- D) VLDL-cholesterol

Answer: A

Section: 18.07

Topic: Clinical applications of the digestive system; Clinical applications of the cardiovascular system

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: N10.01 Predict factors or situations affecting the digestive system that could disrupt homeostasis.

144) The upper third of the esophagus has skeletal muscle in its wall. What are some possible advantages of this fact?

- A) The bolus can clear the upper esophagus quickly.
- B) The final phase of swallowing is voluntary.
- C) Peristalsis will not be necessary, and will not occur.
- D) The first phase of swallowing is involuntary.

Answer: A

Section: 18.02

Topic: Microscopic anatomy of the digestive tract

Bloom's: 4. Analyze

Accessibility: Keyboard Navigation

HAPS Outcome: N02.04b Describe the locations of skeletal and smooth muscle within the wall of the esophagus.

145) What conditions favor the proliferation of intestinal microbiota in the large intestine?

- A) The use of antibiotics
- B) The anaerobic environment of the large intestine
- C) The undigested sugars and amino acids that regularly enter the large intestine
- D) The presence of Vitamin K and Vitamin B12

Answer: B

Section: 18.04

Topic: Microscopic anatomy of the digestive tract

Bloom's: 4. Analyze

Accessibility: Keyboard Navigation

HAPS Outcome: N02.07b Identify the location and discuss the functions of the cecum and appendix, the ascending, transverse, descending, and sigmoid colon, the rectum, and the anus.

Human Physiology, 15e (Fox)
Chapter 20 Reproduction

1) The human female determines the sex of her offspring.

Answer: FALSE

Section: 20.01

Topic: Gene inheritance and expression

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: S02.05 Discuss the role of sex chromosomes in sex determination and sex-linked inheritance.

2) How many autosomal chromosomes are present in human cells?

A) 23 pairs

B) 46

C) 22 pairs

D) 2 pairs

Answer: C

Section: 20.01

Topic: Gene inheritance and expression

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: S02.01 Define the terms chromosome, gene, allele, homologous, homozygous, heterozygous, genotype and phenotype.

3) What type of genetic change occurs when an allele is silenced by methylation of cytosine bases?

A) Genomic

B) Epigenetic

C) Mutation

D) None of the choices are correct.

Answer: B

Section: 20.01

Topic: Gene inheritance and expression

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: S04.02 Predict the types of problems that would occur in the body if gene structure or chromosome number were altered.

4) What type of genes are found on the Y chromosome?

A) X-transposed genes

B) Degenerate genes

C) Testis-specific genes

D) All of the choices are correct.

Answer: D

Section: 20.01

Topic: Gene inheritance and expression

Bloom's: 1. Remember

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: S02.05 Discuss the role of sex chromosomes in sex determination and sex-linked inheritance.

5) Genomic imprinting allows for differing expressions of an allele.

Answer: TRUE

Section: 20.01

Topic: Genetic variability

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: S02.01 Define the terms chromosome, gene, allele, homologous, homozygous, heterozygous, genotype and phenotype.

6) Epigenetic changes cannot be passed on to a zygote.

Answer: FALSE

Section: 20.01

Topic: Genetic variability

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: S01.01 Describe events that lead to genetic variability of gametes.

7) A fertilized egg is called a(n) _____.

A) autosome

B) zygote

C) ovum

D) Barr body

Answer: B

Section: 20.01

Topic: Fertilization and the pre-embryonic stage

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: R07.02 Define fertilization.

8) Which structure would be found in normal somatic cells of women but not men?

A) An X chromosome

B) A Y chromosome

C) A Barr body

D) 22 pairs of autosomal chromosomes

Answer: C

Section: 20.01

Topic: Gene inheritance and expression

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: S02.05 Discuss the role of sex chromosomes in sex determination and sex-linked inheritance.; S03.03 Contrast the process and the final products of spermatogenesis and oogenesis.

9) Cryptorchid males do not produce testosterone.

Answer: FALSE

Section: 20.01

Topic: Physiology of the male reproductive system

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: R05.01 Discuss the relationship between the location of the testes and sperm production.

10) Deletion of the SRY gene would cause male fetuses to develop as females.

Answer: TRUE

Section: 20.01

Topic: Genetic variability

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: R07.03 Describe the major events of embryonic and fetal development.; S02.05 Discuss the role of sex chromosomes in sex determination and sex-linked inheritance.

11) Leydig cells in the male produce Müllerian inhibition factor.

Answer: FALSE

Section: 20.01

Topic: Microscopic anatomy of the male reproductive system; Fertilization and the pre-embryonic stage

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: R07.03 Describe the major events of embryonic and fetal development.

12) What is the principle sex steroid in males?

A) Estrogen

B) Testosterone

C) Progesterone

D) Aldosterone

Answer: B

Section: 20.01

Topic: Physiology of the male reproductive system; Hormones from other endocrine glands and their functions

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: R06.01 State the functions of gonadotropin releasing hormone, follicle stimulating hormone, luteinizing hormone, inhibin, testosterone, estrogen and progesterone.

13) How many chromosomes are found in a normal human cell?

A) 23

B) 23 pairs

C) 46

D) Both 23 pairs and 46 are correct.

Answer: D

Section: 20.01

Topic: Gene inheritance and expression

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: S02.01 Define the terms chromosome, gene, allele, homologous, homozygous, heterozygous, genotype and phenotype.

14) Female accessory sex organs develop from the mesonephric ducts.

Answer: FALSE

ANSWER: FALSE

Section: 20.01

Topic: Development of the reproductive system; Fetal stage

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: R07.03 Describe the major events of embryonic and fetal development.

15) Treating a male fetus with antibodies to DHT would prevent development of the epididymis.

Answer: FALSE

Section: 20.01

Topic: Development of the reproductive system

Bloom's: 3. Apply

Accessibility: Keyboard Navigation

HAPS Outcome: R07.03 Describe the major events of embryonic and fetal development.

16) Female accessory sex organs develop because of the increase in estrogen from the ovaries during puberty.

Answer: FALSE

Section: 20.01

Topic: Development of the reproductive system

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: R07.03 Describe the major events of embryonic and fetal development.

17) A lack of testosterone in males will cause the genital tubercle to form a(n) _____.

A) penis

B) testis

C) clitoris

D) ovary

Answer: C

Section: 20.01

Topic: Development of the reproductive system

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: R07.03 Describe the major events of embryonic and fetal development.

18) The first event to occur during development of the reproductive system would be the _____.

A) descent of the testes into the scrotum

B) formation of the vagina

C) onset of testosterone production

D) development of the Müllerian ducts

Answer: D

Section: 20.01

Topic: Development of the reproductive system

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: R07.03 Describe the major events of embryonic and fetal development.

19) Testosterone, not DHT, stimulates embryonic development of _____.

A) seminal vesicles

B) ductus deferens

C) ejaculatory duct

D) All of the choices are correct.

Answer: D

Section: 20.01

Topic: Development of the reproductive system

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: R07.05 Describe the hormonal changes during pregnancy and the effect of these hormones.

20) Males lacking testosterone receptors would _____.

- A) develop as genotypic females
- B) have testes and female external genitalia
- C) lack gonads
- D) have male internal genitalia

Answer: B

Section: 20.01

Topic: Development of the reproductive system

Bloom's: 3. Apply

Accessibility: Keyboard Navigation

HAPS Outcome: R07.03 Describe the major events of embryonic and fetal development.; R07.05 Describe the hormonal changes during pregnancy and the effect of these hormones.

21) The embryonic urethral fold becomes the female _____.

- A) labia minora
- B) labia majora
- C) glans clitoris
- D) All of the choices are correct.

Answer: A

Section: 20.01

Topic: Development of the reproductive system

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: R07.03 Describe the major events of embryonic and fetal development.

22) Those with testicular feminization syndrome have _____.

- A) an extra X chromosome
- B) a missing X chromosome
- C) an extra chromosome 23
- D) no chromosomal number abnormalities

Answer: D

Section: 20.01

Topic: Development of the reproductive system; Clinical applications of the reproductive system

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: R07.03 Describe the major events of embryonic and fetal development.; R11.02 Predict the types of problems that would occur in the body if the reproductive system could not maintain homeostasis.

23) A male with 5 alpha-reductase deficiency will have male internal sex organs, but more female appearing external genitals.

Answer: TRUE

Section: 20 01

Section: 20.02

Topic: Development of the reproductive system

Bloom's: 3. Apply

Accessibility: Keyboard Navigation

HAPS Outcome: R07.03 Describe the major events of embryonic and fetal development.; R11.02 Predict the types of problems that would occur in the body if the reproductive system could not maintain homeostasis.

24) During the first trimester of pregnancy, the ovaries are active endocrine glands.

Answer: FALSE

Section: 20.02

Topic: Development of the reproductive system; Embryonic stage

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: R07.05 Describe the hormonal changes during pregnancy and the effect of these hormones.

25) Gonadotropic hormones from the anterior pituitary will affect the gonads in all of the following ways EXCEPT _____.

- A) stimulation of spermatogenesis or oogenesis
- B) stimulation of gonadal hormone secretion
- C) suppression of sexual drive
- D) maintenance of gonad structures

Answer: C

Section: 20.02

Topic: General functions of the male and female reproductive systems; Hormones from the hypothalamus and pituitary glands and their functions

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: R06.01 State the functions of gonadotropin releasing hormone, follicle stimulating hormone, luteinizing hormone, inhibin, testosterone, estrogen and progesterone.

26) The rate at which GnRH is secreted from the hypothalamus determines whether LH or FSH is secreted from the anterior pituitary.

Answer: TRUE

Section: 20.02

Topic: General functions of the male and female reproductive systems; Hormones from the hypothalamus and pituitary glands and their functions

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: R06.01 State the functions of gonadotropin releasing hormone, follicle stimulating hormone, luteinizing hormone, inhibin, testosterone, estrogen and progesterone.

27) Hormones secreted by the gonads have a negative feedback effect on gonadotropins of the anterior pituitary.

Answer: TRUE

Section: 20.02

Topic: General functions of the male and female reproductive systems; Hormones from the hypothalamus and pituitary glands and their functions

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: R06.01 State the functions of gonadotropin releasing hormone, follicle stimulating hormone, luteinizing hormone, inhibin, testosterone, estrogen and progesterone.

28) The secretion of GnRH, FSH, and LH are pulsatile instead of continuous.

Answer: TRUE

Section: 20.02

Topic: General functions of the male and female reproductive systems; Hormones from the hypothalamus and pituitary glands and their functions

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: R06.01 State the functions of gonadotropin releasing hormone, follicle stimulating hormone, luteinizing hormone, inhibin, testosterone, estrogen and progesterone.

29) In general, the onset of puberty occurs sooner in boys compared to girls.

Answer: FALSE

Section: 20.02

Topic: General functions of the male and female reproductive systems; Development of the reproductive system

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: R06.03 Compare and contrast the events and endocrine regulation of female and male puberty.

30) The first sign of puberty in females is _____.

A) breast development

B) menarche

C) rapid longitudinal growth of the skeleton

D) axillary hair growth

Answer: C

Section: 20.02

Topic: Physiology of the female reproductive system; Development of the reproductive system

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: R06.03 Compare and contrast the events and endocrine regulation of female and male puberty.

31) What event(s) occur to start puberty?

A) GABA release in hypothalamus is reduced.

B) Glutamate stimulation of the hypothalamus is increased.

C) Secretion of GnRH to the anterior pituitary increases.

D) All of the choices are correct.

Answer: D

Section: 20.02

Topic: Physiology of the female reproductive system; Development of the reproductive system

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: R06.03 Compare and contrast the events and endocrine regulation of female and male puberty.

32) Pubic and axillary hair growth at puberty results from increased secretion of _____.

A) anterior pituitary gonadotropins

B) estrogen and testosterone from the gonads

C) androgens from the adrenal cortex

D) melatonin from the pineal gland

Answer: A

Section: 20.02

Topic: Development of the reproductive system; Hormones from the hypothalamus and pituitary glands and their functions

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: R06.03 Compare and contrast the events and endocrine regulation of female and male puberty.

33) Longitudinal growth during development is dependent on estrogen stimulation of the epiphyseal growth plates in both males and females.

Answer: TRUE

Section: 20.02

Topic: General functions of the male and female reproductive systems; Physiology of bone growth, repair and remodeling

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: R06.03 Compare and contrast the events and endocrine regulation of female and male puberty.

34) In males, androgens are required for _____.

- A) initiation of spermatogenesis at puberty
- B) regression of the wolffian ducts during embryonic development
- C) maintenance of accessory sex organs
- D) development of the Müllerian ducts

Answer: C

Section: 20.02

Topic: Physiology of the male reproductive system

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: R06.02 Compare and contrast endocrine regulation of spermatogenesis and oogenesis.

35) Which of the following is a precursor to melatonin synthesis?

- A) Tryptophan
- B) Serotonin
- C) Tyrosine
- D) Both tryptophan and serotonin are correct.

Answer: A

Section: 20.02

Topic: Hormones from other endocrine glands and their functions

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: R06.03 Compare and contrast the events and endocrine regulation of female and male puberty.

36) The correct order of the four phases of sexual response is _____.

- A) excitation, plateau, orgasm, resolution
- B) plateau, excitation, orgasm, resolution
- C) orgasm, excitation, resolution, plateau
- D) resolution, plateau, excitation, orgasm

Answer: A

Section: 20.02

Section: 20.02

Topic: General functions of the male and female reproductive systems

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: R06.05 Compare and contrast female and male sexual responses.

37) The majority of the testis is comprised of _____.

- A) Leydig cells
- B) interstitial cells
- C) Sertoli cells
- D) seminiferous tubules

Answer: D

Section: 20.03

Topic: Microscopic anatomy of the male reproductive system

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: R02.02a Identify and describe the reproductive and supporting cells of the seminiferous tubules of the testis.

38) Sertoli cells are stimulated by _____, while Leydig cells are stimulated by _____.

- A) FSH; LH
- B) LH; FSH
- C) testosterone; LH
- D) FSH; testosterone

Answer: A

Section: 20.03

Topic: Physiology of the male reproductive system; Physiology of hormone and hormone secretion

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: R02.02a Identify and describe the reproductive and supporting cells of the seminiferous tubules of the testis.; R06.01 State the functions of gonadotropin releasing hormone, follicle stimulating hormone, luteinizing hormone, inhibin, testosterone, estrogen and progesterone.

39) In males, conversion of testosterone to estrogen in the brain is essential for normal regulation of LH secretion.

Answer: TRUE

Section: 20.03

Topic: Physiology of the male reproductive system; Physiology of hormone and hormone secretion

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: R06.01 State the functions of gonadotropin releasing hormone, follicle stimulating hormone, luteinizing hormone, inhibin, testosterone, estrogen and progesterone.

40) What enzyme is needed for the conversion of testosterone into estradiol in the male brain?

- A) 5-alpha reductase
- B) Aromatase
- C) ATPase
- D) cGMP phosphodiesterase

Answer: B

Section: 20.03

Topic: Physiology of the male reproductive system; Physiology of hormone and hormone secretion

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: R05.02 Explain the role of the sustentacular cells and interstitial cells in sperm production.

41) Secretion of LH is inhibited by _____.

- A) high concentrations of inhibin
- B) rapidly rising concentrations of estradiol
- C) high concentrations of testosterone
- D) decreasing concentrations of progesterone

Answer: C

Section: 20.03

Topic: Physiology of the male reproductive system; Physiology of hormone and hormone secretion

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: R06.01 State the functions of gonadotropin releasing hormone, follicle stimulating hormone, luteinizing hormone, inhibin, testosterone, estrogen and progesterone.

42) Testosterone in men declines at a similar rate as estrogen does in women.

Answer: FALSE

Section: 20.03

Topic: Physiology of the male reproductive system; Effects of pregnancy on the mother

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: R06.01 State the functions of gonadotropin releasing hormone, follicle stimulating hormone, luteinizing hormone, inhibin, testosterone, estrogen and progesterone.

43) Male androgens _____.

- A) stimulate protein synthesis and muscle growth
- B) stimulate bone growth
- C) stimulate erythropoiesis
- D) All of the choices are correct.

Answer: D

Section: 20.03

Topic: Physiology of the male reproductive system; Physiology of hormone and hormone secretion

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: R06.01 State the functions of gonadotropin releasing hormone, follicle stimulating hormone, luteinizing hormone, inhibin, testosterone, estrogen and progesterone.

44) Estrogen may play a role in spermatogenesis, as evidenced by estrogen receptors found on developing _____.

- A) sperm cells
- B) testes
- C) uterine
- D) Leydig cells

Answer: A

Section: 20.03

Topic: Physiology of the male reproductive system

Topic: Physiology of the male reproductive system

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: R05.02 Explain the role of the sustentacular cells and interstitial cells in sperm production.

45) Damage to the Sertoli cells would result in the production of antibodies against sperm cells.

Answer: TRUE

Section: 20.03

Topic: Physiology of the male reproductive system

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: R05.02 Explain the role of the sustentacular cells and interstitial cells in sperm production.; R11.01 Predict factors or situations affecting the reproductive system that could disrupt homeostasis.

46) The Leydig cells of the testes constitute a blood-testis barrier that prevents autoimmune destruction of the sperm.

Answer: FALSE

Section: 20.03

Topic: Physiology of the male reproductive system

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: R05.02 Explain the role of the sustentacular cells and interstitial cells in sperm production.

47) What occurs during spermiogenesis?

- A) Chromosomes are compacted by protamines
- B) Flagellum and acrosome form
- C) Cytoplasm removed by Sertoli cells
- D) All of the choices are correct.

Answer: D

Section: 20.03

Topic: Gametogenesis

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: R05.02 Explain the role of the sustentacular cells and interstitial cells in sperm production.

48) After meiosis I in males, _____ are formed.

- A) primary spermatocytes
- B) secondary spermatocytes
- C) spermatids
- D) spermatozoa

Answer: B

Section: 20.03

Topic: Gametogenesis

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: R03.02 Relate the general stages of meiosis to the specific processes of spermatogenesis and oogenesis.

49) Apoptosis of T lymphocytes requires that Sertoli cells produce _____.

- A) FAS ligand
- B) androgen-binding protein
- C) testosterone
- D) All of these choices are correct.

Answer: A

Section: 20.03

Topic: Physiology of the male reproductive system

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: R05.02 Explain the role of the sustentacular cells and interstitial cells in sperm production.

50) Spermatogenesis is regulated by _____.

- A) FSH
- B) testosterone and its derivatives
- C) growth hormone
- D) progesterone

Answer: B

Section: 20.03

Topic: Gametogenesis; Physiology of the male reproductive system

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: R03.02 Relate the general stages of meiosis to the specific processes of spermatogenesis and oogenesis.

51) Choose the event in the male reproductive process that does not involve the Sertoli cells.

- A) Production of androgen-binding protein
- B) FSH stimulation of spermiogenesis
- C) Protection of developing sperm from the male's immune system
- D) Production of testosterone

Answer: D

Section: 20.03

Topic: Physiology of the male reproductive system

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: R05.02 Explain the role of the sustentacular cells and interstitial cells in sperm production.

52) FSH is necessary for spermiogenesis to occur.

Answer: FALSE

Section: 20.03

Topic: Gametogenesis; Physiology of the male reproductive system; Hormones from the hypothalamus and pituitary glands and their functions

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: R05.02 Explain the role of the sustentacular cells and interstitial cells in sperm production.

53) Tight junctions between _____ are responsible for the formation of the blood-testis barrier.

- A) Leydig cells
- B) Sertoli cells
- C) spermatogonial cells

C) spermatogonial cells
D) trophoblast cells

Answer: B

Section: 20.03

Topic: Microscopic anatomy of the male reproductive system

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: R05.02 Explain the role of the sustentacular cells and interstitial cells in sperm production.

54) Removal of the _____ would result in a lack of energy in the semen to support the sperm cells.

A) seminal vesicles

B) prostate

C) testis

D) epididymis

Answer: A

Section: 20.03

Topic: Microscopic anatomy of the male reproductive system; Physiology of the male reproductive system

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: R05.04 Identify and describe the organs involved in semen production.;

R05.05 Discuss the composition of semen and its role in sperm function.

55) Sperm are stored and matured in the _____.

A) vas deferens

B) seminal vesicles

C) epididymis

D) prostate gland

Answer: C

Section: 20.03

Topic: Microscopic anatomy of the male reproductive system; Physiology of the male reproductive system

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: R05.03 Describe the pathway of sperm from the seminiferous tubules to the external urethral orifice of the penis.

56) About 60% of the volume of semen is produced by the _____.

A) seminal vesicles

B) prostate gland

C) bulbourethral glands

D) testes

Answer: A

Section: 20.03

Topic: Microscopic anatomy of the male reproductive system; Physiology of the male reproductive system

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: R05.04 Identify and describe the organs involved in semen production.;

R05.05 Discuss the composition of semen and its role in sperm function.

57) Emission and ejaculation are under parasympathetic nerve control.

Answer: FALSE

Section: 20.03

Topic: Physiology of the male reproductive system; Functions of the autonomic nervous system

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: R06.05 Compare and contrast female and male sexual responses.

58) The movement of semen into the urethra is called _____.

- A) emission
- B) erection
- C) ejaculation
- D) ovulation

Answer: A

Section: 20.03

Topic: Physiology of the male reproductive system

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: R05.03 Describe the pathway of sperm from the seminiferous tubules to the external urethral orifice of the penis.

59) Viagra works by blocking _____, which raises cGMP concentration, and promotes vasodilation of vascular smooth muscle of the penis.

- A) 5-alpha reductase
- B) aromatase
- C) ATPase
- D) cGMP phosphodiesterase

Answer: D

Section: 20.03

Topic: Physiology of the male reproductive system

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: R06.05 Compare and contrast female and male sexual responses.

60) Nitric oxide released by endothelial cells in vascular smooth muscle is responsible for smooth muscle relaxation, and therefore responsible for _____.

- A) reduced blood flow to bronchioles
- B) increased blood flow in placenta
- C) increased blood flow to the fetus
- D) penile erection

Answer: D

Section: 20.03

Topic: Physiology of the male reproductive system

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: R06.05 Compare and contrast female and male sexual responses.

61) The most successful method of contraception is _____.

- A) vasectomy
- B) oral contraceptives
- C) the rhythm method
- D) condom usage

Answer: A

Section: 20.03

Topic: Clinical applications of the reproductive system

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: R05.03 Describe the pathway of sperm from the seminiferous tubules to the external urethral orifice of the penis.

62) What allows the compaction of chromatin in the process of spermiogenesis?

A) Histones

B) Acrosome

C) Protamines

D) Testosterone

Answer: C

Section: 20.03

Topic: Gametogenesis

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: R05.02 Explain the role of the sustentacular cells and interstitial cells in sperm production.

63) How many sperm are produced from one spermatogonium?

A) One

B) Two

C) Four

D) Eight

Answer: C

Section: 20.03

Topic: Gametogenesis

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: R03.03 Contrast the process and the final products of spermatogenesis and oogenesis.

64) Male contraceptive drugs that would block FSH would be very effective for birth control.

Answer: FALSE

Section: 20.03

Topic: Clinical applications of the reproductive system; Hormones from the hypothalamus and pituitary glands and their functions

Bloom's: 3. Apply

Accessibility: Keyboard Navigation

HAPS Outcome: R06.02 Compare and contrast endocrine regulation of spermatogenesis and oogenesis.

65) The myometrium is the inner most layer of the uterus.

Answer: FALSE

Section: 20.04

Topic: Microscopic anatomy of the female reproductive system

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: R02.01 With respect to the gross anatomy, identify and describe the anatomy of the male and female reproductive system, including the gonads, ducts, accessory glands, associated support structures, and external genitalia.

associated support structures, and external genitalia.

66) Meiosis II is not completed in the secondary oocyte until after fertilization.

Answer: TRUE

Section: 20.04

Topic: Gametogenesis; Fertilization and the pre-embryonic stage

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: R03.02 Relate the general stages of meiosis to the specific processes of spermatogenesis and oogenesis.

67) Ovarian granulosa cells synthesize estradiol, which is produced by the theca interna cells from _____.

A) FSH

B) progesterone

C) testosterone

D) LH

Answer: C

Section: 20.04

Topic: Microscopic anatomy of the female reproductive system

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: R02.02b Identify and describe the different stages of follicular development in the ovary, including the preovulatory follicle and the corpus luteum.

68) Which is NOT characteristic of a mature ovarian follicle?

A) Has a fluid-filled antrum

B) Granulosa cells secrete estradiol

C) Contains a secondary oocyte

D) The oocyte has completed meiosis II

Answer: D

Section: 20.04

Topic: Microscopic anatomy of the female reproductive system; Physiology of the female reproductive system

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: R02.02b Identify and describe the different stages of follicular development in the ovary, including the preovulatory follicle and the corpus luteum.

69) A follicle that does not complete development into a mature ovarian follicle will _____.

A) rest until the next month

B) continue meiosis

C) become a primordial follicle

D) undergo follicle atresia

Answer: D

Section: 20.04

Topic: Microscopic anatomy of the female reproductive system; Physiology of the female reproductive system

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: R02.02b Identify and describe the different stages of follicular development in the ovary, including the preovulatory follicle and the corpus luteum.

70) What structure of a mature follicle is a barrier to sperm and fertilization?

- A) Zona pellucida
- B) Corona radiata
- C) Antrum
- D) Cumulus oophorus

Answer: A

Section: 20.04

Topic: Microscopic anatomy of the female reproductive system; Physiology of the female reproductive system

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: R02.02b Identify and describe the different stages of follicular development in the ovary, including the preovulatory follicle and the corpus luteum.

71) Low levels of blood progesterone indicate that the corpus luteum has formed.

Answer: FALSE

Section: 20.04

Topic: Microscopic anatomy of the female reproductive system; Physiology of the female reproductive system

Bloom's: 3. Apply

Accessibility: Keyboard Navigation

HAPS Outcome: R02.02b Identify and describe the different stages of follicular development in the ovary, including the preovulatory follicle and the corpus luteum.

72) What is it called when a mature follicle ruptures and ejects the oocyte into the uterine tube?

- A) Gestation
- B) Menstruation
- C) Ovulation
- D) Fertilization

Answer: C

Section: 20.04

Topic: Microscopic anatomy of the female reproductive system; Physiology of the female reproductive system

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: R04.01 Describe the pathway of the ovum from the ovary to the uterus.

73) What is the process that occurs when a mature follicle ruptures and ejects the oocyte into the uterine tube?

- A) Macula lutea
- B) Corpus luteum
- C) Fibroids
- D) Mature ovarian follicle

Answer: B

Section: 20.04

Topic: Microscopic anatomy of the female reproductive system; Physiology of the female reproductive system

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: R02.02b Identify and describe the different stages of follicular development in the ovary, including the preovulatory follicle and the corpus luteum.; R04.02 Describe the ovarian cycle and relate the events of the ovarian cycle to oogenesis.

74) The follicular phase is characterized by rising concentrations of estrogen.

Answer: TRUE

Section: 20.05

Topic: Physiology of the female reproductive system

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: R04.02 Describe the ovarian cycle and relate the events of the ovarian cycle to oogenesis.

75) Luteal regression may be inhibited by _____.

- A) inhibiting the synthesis of prostaglandins
- B) stimulating the synthesis of progesterone
- C) stimulating the synthesis of LH
- D) inhibiting the synthesis of FSH

Answer: A

Section: 20.05

Topic: Physiology of the female reproductive system

Bloom's: 4. Analyze

Accessibility: Keyboard Navigation

HAPS Outcome: R04.02 Describe the ovarian cycle and relate the events of the ovarian cycle to oogenesis.

76) What hormone triggers ovulation?

- A) LH
- B) FSHC
- C) Progesterone
- D) hCG

Answer: A

Section: 20.04

Topic: Physiology of the female reproductive system

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: R04.02 Describe the ovarian cycle and relate the events of the ovarian cycle to oogenesis.

77) The _____ phase of the endometrium is supported when the ovary is in the luteal phase.

- A) proliferative
- B) secretory
- C) menstrual
- D) ovulatory

Answer: B

Section: 20.05

Topic: Physiology of the female reproductive system

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: R04.02 Describe the ovarian cycle and relate the events of the ovarian cycle to oogenesis.; R04.03 Describe the events of the uterine cycle.

78) Estradiol amounts rise during the _____ phase of the endometrial menstrual cycle.

- A) proliferative
- B) menstrual
- C) secretory

D) follicular

Answer: A

Section: 20.05

Topic: Physiology of the female reproductive system

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: R04.03 Describe the events of the uterine cycle.

79) In the female menstrual cycle _____.

A) ovulation is stimulated by decreasing concentrations of progesterone

B) menstruation occurs during the last four days of the cycle

C) progesterone secretion is stimulated by LH

D) the luteal phase is characterized by high circulating concentrations of estrogens

Answer: C

Section: 20.05

Topic: Physiology of the female reproductive system

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: R04.02 Describe the ovarian cycle and relate the events of the ovarian cycle to oogenesis.; R04.03 Describe the events of the uterine cycle.

80) The secretory phase of the endometrium occurs when the ovary is in the _____ phase.

A) follicular

B) luteal

C) menstrual

D) ovulatory

Answer: B

Section: 20.05

Topic: Physiology of the female reproductive system

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: R04.02 Describe the ovarian cycle and relate the events of the ovarian cycle to oogenesis.; R04.03 Describe the events of the uterine cycle.

81) Women who are thin, athletic, and under prolonged stress may experience cessation of menstruation or _____.

A) dysmenorrhea

B) menorrhagia

C) primary amenorrhea

D) functional amenorrhea

Answer: D

Section: 20.05

Topic: Physiology of the female reproductive system; Clinical applications of the reproductive system

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: R11.01 Predict factors or situations affecting the reproductive system that could disrupt homeostasis.

82) How many ova are produced by oogenesis of one oogonia?

A) One

B) Two

C) Four

D) Eight

Answer: A

Section: 20.04

Topic: Microscopic anatomy of the female reproductive system; Gametogenesis

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: R03.03 Contrast the process and the final products of spermatogenesis and oogenesis.

83) What are the small cells produced by the uneven cytoplasmic divisions of oogenesis?

A) Thecal cells

B) Follicles

C) Antrum

D) Polar bodies

Answer: D

Section: 20.04

Topic: Gametogenesis

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: R03.03 Contrast the process and the final products of spermatogenesis and oogenesis.

84) Day 1 of the menstrual cycle is the _____.

A) day ovulation occurs

B) first day of the menses

C) last day of the menses

D) first day of the proliferative phase

Answer: B

Section: 20.05

Topic: Physiology of the female reproductive system

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: R04.03 Describe the events of the uterine cycle.

85) What is the major hormone produced during the luteal phase?

A) Progesterone

B) Estrogen

C) Androgen

D) hCG

Answer: A

Section: 20.05

Topic: Physiology of the female reproductive system

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: R04.02 Describe the ovarian cycle and relate the events of the ovarian cycle to oogenesis.

86) The LH surge is caused by _____.

A) estradiol increasing frequency of GnRH pulses

B) more FSH receptors placed in granulosa cells

C) a quick drop in FSH

D) rapid increase in progesterone

Answer: A

Section: 20.05

Topic: Physiology of the female reproductive system; Hormones from the hypothalamus and pituitary glands and their functions

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: R04.02 Describe the ovarian cycle and relate the events of the ovarian cycle to oogenesis.; R06.01 State the functions of gonadotropin releasing hormone, follicle stimulating hormone, luteinizing hormone, inhibin, testosterone, estrogen and progesterone.

87) The LH surge causes _____.

- A) menses
- B) ovulation
- C) endometrium build-up
- D) All of the choices are correct.

Answer: B

Section: 20.05

Topic: Physiology of the female reproductive system; Hormones from the hypothalamus and pituitary glands and their functions

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: R04.02 Describe the ovarian cycle and relate the events of the ovarian cycle to oogenesis.

88) High progesterone levels during the luteal phase _____.

- A) causes cervical mucus to thicken
- B) suppresses FSH and LH
- C) causes thickening of the endometrium
- D) All of the choices are correct.

Answer: D

Section: 20.05

Topic: Physiology of the female reproductive system; Hormones from the hypothalamus and pituitary glands and their functions

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: R04.02 Describe the ovarian cycle and relate the events of the ovarian cycle to oogenesis.

89) The Contraceptive Pill contains _____.

- A) FSH
- B) estrogen
- C) progesterone
- D) estrogen and progesterone

Answer: D

Section: 20.05

Topic: Clinical applications of the reproductive system

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: R04.06 Provide examples of how birth control methods relate to normal reproductive function.

90) For the rhythm method to be successful, coitus must not happen _____.

- A) during the first 10 days of the menstrual cycle

- B) 6 days prior to ovulation through 2 days after ovulation
- C) during the last 10 days of the menstrual cycle
- D) Both during the first 10 days of the menstrual cycle and during the last 10 days of the menstrual cycle.

Answer: B

Section: 20.05

Topic: Physiology of the female reproductive system

Bloom's: 3. Apply

Accessibility: Keyboard Navigation

HAPS Outcome: R04.06 Provide examples of how birth control methods relate to normal reproductive function.

91) The secretion of gonadotropins (FSH and LH) will _____ during the onset menopause.

- A) increase
- B) decrease
- C) remain the same

Answer: A

Section: 20.05

Topic: Physiology of the female reproductive system; Effects of aging on the reproductive system; Hormones from the hypothalamus and pituitary glands and their functions

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: R06.06 Define menopause, describe the physiological changes associated with menopause, and explain the fertility changes that precede menopause.

92) The weak form of estrogen found in the blood of postmenopausal women is termed as _____.

- A) estrogen
- B) progesterone
- C) estrone
- D) menopausal estrogen

Answer: C

Section: 20.05

Topic: Physiology of the female reproductive system; Effects of aging on the reproductive system

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: R06.06 Define menopause, describe the physiological changes associated with menopause, and explain the fertility changes that precede menopause.

93) Having a greater amount of adipose tissue after menopause may reduce the risk of osteoporosis in females.

Answer: TRUE

Section: 20.05

Topic: Physiology of the female reproductive system; Effects of aging on the reproductive system; Clinical applications of the reproductive system

Bloom's: 4. Analyze

Accessibility: Keyboard Navigation

HAPS Outcome: R06.06 Define menopause, describe the physiological changes associated with menopause, and explain the fertility changes that precede menopause.

94) The process of sperm gaining the ability to fertilize an ovum as they pass through the female reproductive tract is called _____.

reproductive tract is called _____.

- A) capacitation
- B) receptiveness
- C) spermatogenesis
- D) spermiogenesis

Answer: A

Section: 20.06

Topic: Physiology of the male reproductive system; Fertilization and the pre-embryonic stage

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: R07.01 Describe conception, including sperm capacitation, acrosomal reaction, sperm penetration, cortical reaction, and fusion of pronuclei.

95) The _____ provides enzymes that allow the sperm to digest a pathway through the zona pellucida to the oocyte.

- A) chorion
- B) zygote
- C) acrosome
- D) blastocyst

Answer: C

Section: 20.06

Topic: Physiology of the male reproductive system; Fertilization and the pre-embryonic stage

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: R07.01 Describe conception, including sperm capacitation, acrosomal reaction, sperm penetration, cortical reaction, and fusion of pronuclei.

96) What ion is released by the fertilized egg that prevents polyspermy?

- A) Na⁺
- B) K⁺
- C) Cl⁻
- D) Ca²⁺

Answer: D

Section: 20.06

Topic: Fertilization and the pre-embryonic stage

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: R07.01 Describe conception, including sperm capacitation, acrosomal reaction, sperm penetration, cortical reaction, and fusion of pronuclei.

97) Besides chromosomes, what else does the sperm provide to the zygote that is necessary for cell division to occur?

- A) Mitochondria
- B) Centrosome
- C) Enzymes
- D) All of the choices are correct.

Answer: B

Section: 20.06

Topic: Fertilization and the pre-embryonic stage

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: R07.01 Describe conception, including sperm capacitation, acrosomal reaction, sperm penetration, cortical reaction, and fusion of pronuclei.

98) The calcium wave that prevents polyspermy also causes _____.

- A) the sperm to lose its tail
- B) the secondary oocyte to finish meiosis II
- C) mitosis to occur
- D) All of the choices are correct.

Answer: B

Section: 20.06

Topic: Physiology of the male reproductive system; Fertilization and the pre-embryonic stage

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: R07.01 Describe conception, including sperm capacitation, acrosomal reaction, sperm penetration, cortical reaction, and fusion of pronuclei.

99) The trophoblast cells of the chorion secrete _____, which maintains the corpus luteum, thereby preventing menstruation.

- A) GnRH
- B) ACTH
- C) hCG
- D) FSH

Answer: C

Section: 20.06

Topic: Physiology of the female reproductive system; Fertilization and the pre-embryonic stage

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: R07.03 Describe the major events of embryonic and fetal development.

100) Ova are fertilized in the _____.

- A) cervix
- B) fallopian tubes
- C) uterus
- D) vagina

Answer: B

Section: 20.06

Topic: Physiology of the female reproductive system; Fertilization and the pre-embryonic stage

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: R07.02 Define fertilization.

101) A fertilized egg is called a(n) _____.

- A) zygote
- B) blastocyst
- C) morula
- D) embryo

Answer: A

Section: 20.06

Topic: Fertilization and the pre-embryonic stage

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: R07.02 Define fertilization.

102) What process occurs as the zygote travels towards the uterus in the fallopian tubes?

- A) Cleavage

- A) Cleavage
- B) Fertilization
- C) Capacitation
- D) Polyspermy

Answer: A

Section: 20.06

Topic: Physiology of the female reproductive system; Fertilization and the pre-embryonic stage

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: R07.03 Describe the major events of embryonic and fetal development.

103) A ball of about eight cells formed about 50 to 60 hours after fertilization is called a(n)

_____.

- A) zygote
- B) morula
- C) blastocyst
- D) embryo

Answer: B

Section: 20.06

Topic: Fertilization and the pre-embryonic stage

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: R07.03 Describe the major events of embryonic and fetal development.

104) Nidation is the process of the blastocyst implanting itself into the thick _____.

- A) myometrium
- B) fallopian tubes
- C) endometrium
- D) epimetrium

Answer: C

Section: 20.06

Topic: Physiology of the female reproductive system; Fertilization and the pre-embryonic stage

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: R02.02b Identify and describe the different stages of follicular development in the ovary, including the preovulatory follicle and the corpus luteum.; R07.03 Describe the major events of embryonic and fetal development.

105) A stem cell that can give rise to all tissues except the trophoblast cells of the placenta is called _____.

- A) totipotent
- B) retro-potent
- C) multipotent
- D) pluripotent

Answer: D

Section: 20.06

Topic: Fertilization and the pre-embryonic stage

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: R07.03 Describe the major events of embryonic and fetal development.

106) The blastocyst consists of the _____.

- A) blastocyst and amnion

- B) morula and placenta
- C) chorion and inner cell mass
- D) embryo and chorion

Answer: C

Section: 20.06

Topic: Fertilization and the pre-embryonic stage

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: R07.03 Describe the major events of embryonic and fetal development.

107) The ability of a cell to give rise to an entire organism if implanted in a uterus is termed as _____.

- A) totipotent
- B) multipotent
- C) pluripotent
- D) reproductive cloning

Answer: A

Section: 20.06

Topic: Fertilization and the pre-embryonic stage

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: R07.03 Describe the major events of embryonic and fetal development.

108) The chorion frondosum develops from the _____ layer of the chorion.

- A) cytotrophoblast
- B) yolk sac
- C) syncytiotrophoblast
- D) amnion

Answer: A

Section: 20.06

Topic: Fertilization and the pre-embryonic stage

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: R07.04 Describe the formation and function of the placenta and extraembryonic membranes.

109) Choose the least invasive way of determining structural abnormalities in the fetus.

- A) Ultrasound
- B) Chorionic villi biopsy
- C) X-ray
- D) Amniocentesis

Answer: A

Section: 20.06

Topic: Clinical applications of the reproductive system

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: S03.01 Describe examples of prenatal and postnatal genetic testing.

110) Choose the hormone that would not result in growth of, or secretion by the ovaries or testes.

- A) Adrenocorticotropin
- B) FSH
- C) LH
- D) GnRH

Answer: A

Section: 20.06

Topic: General functions of the male and female reproductive systems; Hormones from the hypothalamus and pituitary glands and their functions

Bloom's: 3. Apply

Accessibility: Keyboard Navigation

HAPS Outcome: R07.05 Describe the hormonal changes during pregnancy and the effect of these hormones.

111) The last embryonic tissue layer to form is the _____.

A) trophoblast

B) endoderm

C) ectoderm

D) mesoderm

Answer: D

Section: 20.06

Topic: Embryonic stage

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: R07.03 Describe the major events of embryonic and fetal development.

112) Genetic disorders can be detected earliest by _____.

A) amniocentesis

B) chorionic villus biopsy

C) newborn screening

D) ultrasound

Answer: B

Section: 20.06

Topic: Clinical applications of the reproductive system; Embryonic stage

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: R07.04 Describe the formation and function of the placenta and extraembryonic membranes.; S03.01 Describe examples of prenatal and postnatal genetic testing.

113) What hormone is secreted by the trophoblast cells of the chorion that is used in a pregnancy test to determine if a woman is pregnant?

A) LH

B) hCG

C) Estrogen

D) Oxytocin

Answer: B

Section: 20.06

Topic: Clinical applications of the reproductive system; Embryonic stage

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: R07.05 Describe the hormonal changes during pregnancy and the effect of these hormones.

114) The chorionic membrane of the zygote has genes from the father, and is therefore foreign to the mother's immune system.

Answer: TRUE

Section: 20.06

Section: 20.06

Topic: Embryonic stage

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: R07.04 Describe the formation and function of the placenta and extraembryonic membranes.

115) The maternal contribution to the placenta is the _____.

- A) decidua basalis
- B) chorion frondosum
- C) chorionic villi
- D) yolk sac

Answer: A

Section: 20.06

Topic: Embryonic stage

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: R07.04 Describe the formation and function of the placenta and extraembryonic membranes.

116) The _____ is an "incomplete endocrine gland" because it cannot produce estrogen and progesterone without the aid of precursors supplied to it by both the mother and the fetus.

- A) ovary
- B) uterus
- C) placenta
- D) uterine tube

Answer: C

Section: 20.06

Topic: Embryonic stage

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: R07.04 Describe the formation and function of the placenta and extraembryonic membranes.

117) Increased maternal lipolysis is stimulated by the secretion of _____ by the placenta.

- A) human chorionic gonadotropin
- B) chorionic somatomammotropin
- C) progesterone
- D) estrogen

Answer: B

Section: 20.06

Topic: Effects of pregnancy on the mother

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: R07.06 Describe the functional changes in the maternal reproductive, endocrine, cardiovascular, respiratory, digestive, and urinary systems during pregnancy.

118) The placental hormone that, when elevated, may contribute to gestational diabetes.

- A) Chorionic somatomammotropin
- B) Chorionic gonadotropin
- C) Progesterone
- D) Estrogen

Answer: A

Section: 20.06

Topic: Effects of pregnancy on the mother

Bloom's: 3. Apply

Accessibility: Keyboard Navigation

HAPS Outcome: R07.06 Describe the functional changes in the maternal reproductive, endocrine, cardiovascular, respiratory, digestive, and urinary systems during pregnancy.

119) Initiation of labor involves all of the following EXCEPT _____.

- A) corticotropin-releasing hormone from the placenta
- B) DHEAS from the fetal adrenal gland
- C) cortisol from the mother and fetus
- D) human chorionic gonadotropin from the placenta

Answer: D

Section: 20.06

Topic: Labor and delivery

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: R08.01 Explain the hormonal events that initiate and regulate labor.

120) Cortisol from the fetal adrenal gland will stimulate maturation of the lungs and production of surfactant.

Answer: TRUE

Section: 20.06

Topic: Fetal stage

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: R07.03 Describe the major events of embryonic and fetal development.

121) Which of the following is NOT a role of estriol in parturition?

- A) Produces more receptors for oxytocin
- B) Produces the hormone relaxin
- C) Produces more receptors for prostaglandins
- D) Produces more gap junctions between myometrial cells

Answer: B

Section: 20.06

Topic: Effects of pregnancy on the mother; Labor and delivery

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: R08.01 Explain the hormonal events that initiate and regulate labor.

122) What hormone may play a role in reducing the size of the uterus following delivery?

- A) Progesterone
- B) Prostaglandin
- C) Oxytocin
- D) Prolactin

Answer: C

Section: 20.06

Topic: Effects of pregnancy on the mother; Labor and delivery

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: R08.01 Explain the hormonal events that initiate and regulate labor.

123) The sensitivity of the uterus to oxytocin is increased by

123) The sensitivity of the uterus to oxytocin is increased by _____.

- A) prostaglandin
- B) progesterone
- C) testosterone
- D) estrogen

Answer: D

Section: 20.06

Topic: Effects of pregnancy on the mother; Labor and delivery

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: R08.01 Explain the hormonal events that initiate and regulate labor.

124) To delay labor, a drug would need to act by _____.

- A) inhibiting the actions of progesterone
- B) stimulating the actions of estrogen
- C) inhibiting the actions of oxytocin
- D) stimulating the actions of chorionic gonadotropin

Answer: C

Section: 20.06

Topic: Labor and delivery

Bloom's: 5. Evaluate

Accessibility: Keyboard Navigation

HAPS Outcome: R08.01 Explain the hormonal events that initiate and regulate labor.

125) What hormone is secreted by the anterior pituitary that stimulates production of milk proteins?

- A) Oxytocin
- B) Growth hormone
- C) MSH
- D) Prolactin

Answer: D

Section: 20.06

Topic: The newborn; Hormones from the hypothalamus and pituitary glands and their functions

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: R09.02 Describe the hormonal regulation of lactation.

126) Milk let-down _____.

- A) is stimulated by epinephrine
- B) relies only on autonomic nerves
- C) is inhibited by oxytocin
- D) may occur in response to auditory cues

Answer: D

Section: 20.06

Topic: Physiology of the female reproductive system; The newborn

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: R09.02 Describe the hormonal regulation of lactation.

127) Development of the mammary gland during gestation _____.

- A) is inhibited by estrogens
- B) is stimulated by estrogens
- C) is elevated when dopamine is given to pregnant women

D) requires the permissive effects of insulin, testosterone, and cortisol

Answer: B

Section: 20.06

Topic: Effects of pregnancy on the mother

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: R09.01 Describe the structure and the function of the mammary glands.

128) Infants that are breastfed receive _____ from the mother.

A) IgA

B) IgG

C) IgF

D) IgE

Answer: A

Section: 20.06

Topic: The newborn

Bloom's: 1. Remember

Accessibility: Keyboard Navigation

HAPS Outcome: R09.01 Describe the structure and the function of the mammary glands.

129) The stimulus of sucking causes release of prolactin-releasing hormone via a neuroendocrine reflex.

Answer: TRUE

Section: 20.06

Topic: Physiology of the female reproductive system; The newborn

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: R09.02 Describe the hormonal regulation of lactation.

130) Breastfeeding is an excellent contraceptive for women in developed countries.

Answer: FALSE

Section: 20.06

Topic: Physiology of the female reproductive system

Bloom's: 2. Understand

Accessibility: Keyboard Navigation

HAPS Outcome: R04.05 Explain why changes in cervical mucus can predict a woman's monthly fertility.

131) If a male has his testes removed following testicular cancer, which of the following is likely to occur?

A) Decreased FSH/LH secretion

B) Increased testosterone production

C) Increased inhibin production

D) Increased levels of GnRH

Answer: D

Section: 20.02

Topic: Physiology of the male reproductive system

Bloom's: 4. Analyze

Accessibility: Keyboard Navigation

HAPS Outcome: R06.01 State the functions of gonadotropin releasing hormone, follicle stimulating hormone, luteinizing hormone, inhibin, testosterone, estrogen and progesterone.; R11.01 Predict factors or situations affecting the reproductive system that could disrupt

R11.01 Predict factors or situations affecting the reproductive system that could disrupt homeostasis.

132) Lack of adequate progesterone after ovulation can lead to a miscarriage. Which of the following could cause the decreased progesterone levels?

- A) Increased estrogen production from the ovaries
- B) Increased FSH from the anterior pituitary gland
- C) Lack of human chorionic gonadotropin hormone production
- D) Lack of estradiol from the corpus albicans

Answer: C

Section: 20.06

Topic: Physiology of the female reproductive system; Fertilization and the pre-embryonic stage

Bloom's: 4. Analyze

Accessibility: Keyboard Navigation

HAPS Outcome: R02.02b Identify and describe the different stages of follicular development in the ovary, including the preovulatory follicle and the corpus luteum.

133) Lack of cGMP can lead to which of the following conditions?

- A) Infertility
- B) Nondisjunction
- C) Endometriosis
- D) Erectile dysfunction
- E) Amenorrhea

Answer: D

Section: 20.02

Topic: Physiology of the male reproductive system

Bloom's: 4. Analyze

Accessibility: Keyboard Navigation

HAPS Outcome: R06.05 Compare and contrast female and male sexual responses.; R11.01 Predict factors or situations affecting the reproductive system that could disrupt homeostasis.

134) Which of the following is a result of increased testosterone levels?

- A) The increased conversion of testosterone to estrogen in the red bone marrow
- B) The increased cytokine activity within the blood vessels
- C) Higher levels of hepcidin in the blood
- D) Increased erythropoietin release in the blood

Answer: D

Section: 20.03

Topic: Physiology of the male reproductive system

Bloom's: 5. Evaluate

Accessibility: Keyboard Navigation

HAPS Outcome: R06.01 State the functions of gonadotropin releasing hormone, follicle stimulating hormone, luteinizing hormone, inhibin, testosterone, estrogen and progesterone.

135) Which of the following would increase GnRH levels?

- A) Decreased estrogen
- B) Increased progesterone
- C) Increased hCG
- D) Increased FSH
- E) Increased inhibin

Answer: A

Section: 20.02

Topic: Physiology of the female reproductive system

Bloom's: 3. Apply

Accessibility: Keyboard Navigation

HAPS Outcome: R06.01 State the functions of gonadotropin releasing hormone, follicle stimulating hormone, luteinizing hormone, inhibin, testosterone, estrogen and progesterone.

136) What effect would the changing estrogen and progesterone levels during parturition have on lactation?

- A) Decreased OT
- B) Increased PRL
- C) Increased dopamine
- D) Decreased TRH

Answer: B

Section: 20.06

Topic: Physiology of the female reproductive system

Bloom's: 4. Analyze

Accessibility: Keyboard Navigation

HAPS Outcome: R09.02 Describe the hormonal regulation of lactation.

137) Choose the hormonal event that does NOT demonstrate negative feedback.

- A) Estradiol and FSH release during the proliferative phase of the endometrium
- B) Progesterone and FSH release during the secretory phase of the endometrium
- C) Estradiol and GnRH during the menstrual phase of the endometrium
- D) Progesterone and LH during the secretory phase of the endometrium

Answer: A

Section: 20.05

Topic: Physiology of the female reproductive system; Hormones from the hypothalamus and pituitary glands and their functions

Bloom's: 4. Analyze

Accessibility: Keyboard Navigation

HAPS Outcome: R04.04 Analyze graphs depicting the typical female monthly sexual cycle and correlate ovarian activity, hormonal changes, and uterine events.; R10.01 Provide specific examples to demonstrate how the reproductive system responds to maintain homeostasis in the body.

138) If a physician wanted to measure a woman's peak progesterone production, when should blood work be performed?

- A) One week after the LH surge
- B) Day 7 of the ovulation phase
- C) Two days prior to menstruation is expected
- D) Day 14 of the menstrual cycle

Answer: A

Section: 20.05

Topic: Physiology of the female reproductive system; Hormones from the hypothalamus and pituitary glands and their functions

Bloom's: 3. Apply

Accessibility: Keyboard Navigation

HAPS Outcome: R04.04 Analyze graphs depicting the typical female monthly sexual cycle and correlate ovarian activity, hormonal changes, and uterine events.

139) A woman with a 28-day menstrual cycle would like to avoid pregnancy without the use of contraceptives. She should avoid sexual intercourse _____ for the best chance of preventing pregnancy.

- A) 1 day prior to her LH surge
- B) on days 7-10

by on days 7-10

C) 2 days after start of the secretory phase

D) when basal body temperature is lowest

Answer: A

Section: 20.06

Topic: Fertilization and the pre-embryonic stage

Bloom's: 4. Analyze

Accessibility: Keyboard Navigation

HAPS Outcome: R04.04 Analyze graphs depicting the typical female monthly sexual cycle and correlate ovarian activity, hormonal changes, and uterine events.

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