Student Name_____ **Student Number**_____

UNIVERSITY OF TORONTO
Faculty of Arts and Science

APRIL 2012 EXAMINATIONS

PSL 201Y1 Y

Duration: 3 hours

No aids allowed.

Filling in and coding your answer card (St. George scantron).

1. To 'bubble in' numbers and letters, it is best to use an HB pencil, in case you make an error. Ballpoint pen cannot be erased. Do not make any stray marks on your scantron outside of boxes.

2. Fill in NAME, and STUDENT NUMBER (the blocks first, then code below).

   a) NAME: Print it clearly in block letters, last name and initials. Then code it.

   b) STUDENT NUMBER: Be very careful to code your student number correctly.

3. Complete your answer card BEFORE the end of the exam, as you go along. No extra time is given at the end to transfer answers to the scantron.

Under the heading 'FORM' on your scantron, identify the test version that you have as A or B or C or D (use one letter only). You will see the correct code when you start the test; it is indicated on top of Question 1 in your test paper.

There are two Sections.
Section I has questions 1-32, and each question is worth 1 mark.
Section II has questions 33-88, and each question is worth 0.5 marks.
There are 16 pages in total. There are 60 possible marks in total.

Invigilators are not permitted to interpret questions to individual students. If you think that a question is ambiguous, answer it as you understand it, then make a note below (not your answer card). If you do this, print and sign your name on your question book. Note spelling or typing errors do not make a statement incorrect.

FORM A

SECTION 1. Choose the one alternative that best completes the statement or answers the question. Each question is work 1.0 mark.

1) Considering the Frank-Starling's Law of the heart, predict the immediate (before compensation) effects of decreased venous return on contractility, stroke volume and cardiac output assuming that the heart rate remains constant.
   A) Contractility, stroke volume and cardiac output will decrease.
   B) Contractility will increase, but stroke volume and cardiac output will remain the same.
   C) Contractility, stroke volume and cardiac output will increase.
   D) Contractility will decrease, but stroke volume and cardiac output will remain the same.

2) The white blood cells that release histamine and other inflammatory chemicals are called
   A) Neutrophils
   B) Eosinophils
   C) Monocytes
   D) Basophils

3) As an action potential is propagated away from the axon hillock, why does propagation continue in one direction?
   A) the region just behind the action potential is in the absolute refractory period
   B) the region just in front of the action potential is in the absolute refractory period
   C) the region just in front of the action potential is in the relative refractory period
   D) the region just behind the action potential is in the relative refractory period

4) Which of the following will increase the unloading of oxygen at the tissues?
   A) increased H^+
   B) decreased erythropoietin
   C) lower PCO_2
   D) decreased 2, 3 DPG

5) Which of the following would **NOT** be found within the gray matter of the spinal cord?
   A) afferent neuron cell bodies
   B) axon terminals from afferent neurons
   C) efferent neuron cell bodies
   D) interneurons

6) With the exception of olfaction, all sensory pathways first travel to the _____, which acts as a relay and processing station.
   A) hypothalamus
   B) thalamus
   C) cerebellum
   D) medulla oblongata

7) The simultaneous movement of sodium and glucose into intestinal epithelial cells from the lumen of the small intestine is an example of which of the following?
   A) antitransport
   B) secondary active transport
   C) active transport
   D) facilitated diffusion

8) During quiet breathing, John exhales normally and then is asked to breathe out as much air as possible without inhaling. What is name of the volume/capacity of the extra air that he exhaled?
   A) Vital capacity
   B) Functional residual capacity
   C) Expiratory reserve volume
   D) Tidal volume

9) When do the semilunar valves open?
   A) At the end of the ventricular ejection phase.
   B) When pressure gradients between the ventricles and great vessels exceed 100 mmHg.
   C) At the end of isovolumetric contraction.
   D) When pressure in atria exceeds pressure in ventricles.

10) Select the one **correct** statement:
   A) Glomerular filtration increases with an increase in renal capillary oncotic pressure.
   B) Microvilli are most abundant in the collecting tubule.
   C) High resistance in the efferent arteriole increases glomerular filtration but reduces renal blood flow.
   D) Most reabsorption of water and solute occurs in the descending Limb of Henle.

11) How is the intensity of a stimulus encoded as this information is to transmitted to the central nervous system?
   A) The amplitude of action potentials is greater for a stronger stimulus.
   B) Different second-order neurons transmit information about stimuli of varying intensities.
   C) The frequency of action potentials is greater for a stronger stimulus.
   D) The neurotransmitter released from an afferent neuron differs based on the intensity of the stimulus.

12) What is the name for the swellings in the postganglionic autonomic axons from which neurotransmitters are released?
   A) Sympathetic trunks
   B) Varicosities
   C) Parasympathetic chains
   D) Neuromuscular junctions

13) A recently discovered mutation of the Antidiuretic Hormone (ADH) receptor V2 in the kidneys results in a gain-of-function mutation (receptor is always active in the absence of the hormone). In these patients what would be observed?
A) A decrease in renal Aquaporin 2 molecules in the apical membranes of the collecting ducts.
B) A small volume of dilute urine.
C) Undetectable levels of plasma ADH.
D) Normal plasma levels of Atrial Natriuretic Peptide (ANP).

14) Indicate the proper sequence through which fluid flows as it traverses the structures in question: (A) efferent arteriole, (B) peritubular capillaries, (C) renal artery, (D) glomerulus, (E) afferent arteriole, (F) renal vein.
A) A, B, F, D, E, C
B) C, D, E, A, B, F
C) D, E, C, A, F, B
D) C, E, D, A, B, F

15) Which statement concerning class II major histocompatibility (MHC) molecules is correct?
A) bind and present antigens to cytotoxic T cells
B) capture extracellular antigens and present them to T cells without any modification
C) are involved in the activation of helper T-cells
D) are found on almost all cells in the body

16) Lymphatic vessels:
A) Serve a transport route for glucose absorbed from the intestines.
B) Filter lymph.
C) Have high hydrostatic pressures.
D) Transport leaked plasma proteins and fluids to the cardiovascular system.

17) Select the one **correct** statement.
A) Blood in the efferent glomerular arteriole has more protein and is slightly more viscous than blood in the afferent arteriole.
B) In a healthy patient, the glucose concentration in the descending limb of Henle is similar to that in plasma.
C) Glomerular filtrate in the Bowman's space has the same composition as a urine specimen.
D) The portal system in the kidney is composed of the afferent arteriole, the granular cells of the juxtaglomerular apparatus (JGA) and efferent arteriole.

18) Which are the two most important subsets of antibodies for fetal and newborn immunity?
A) IgM, IgG
B) IgE, IgA
C) IgA, IgG
D) IgM, IgA

19) Which of the following best describes the electrochemical forces acting on sodium and potassium ions at the resting membrane potential?
A) Forces on both sodium and potassium ions are to move out of the cell.
B) The force on sodium ions is to move out of the cell, and the force on potassium ions is to move into the cell.
C) Forces on both sodium and potassium ions are to move into the cell.
D) The force on sodium ions is to move into the cell, and the force on potassium ions is to move out of the cell.

20) The internal clock of mammals appears to be located in the
A) pituitary gland.
B) choroid plexus.
C) brain stem.
D) suprachiasmatic nucleus.

21) The myelin sheaths of peripheral axons are formed from:
A) Schwann cells
B) astrocytes
C) microglia
D) oligodendrocytes

22) What is observed in a person suffering from hyponatriemia?
A) High osmolarity inside cells but low osmolarity outside cells
B) High sodium concentration in intracellular fluid
C) Swelling of cells due to movement of water into cells
D) Lower than normal levels of potassium in the serum

23) Which of the following will decrease venous return to the heart?
A) Defective venous valves.
B) Increased skeletal muscular activity.
C) Increased blood volume.
D) Increased sympathetic activity to veins.

24) Jane is preparing for the summer Olympic games in London. To monitor the effects of her training, she had a lung function test and the following values were obtained. What is the value of her minute ventilation?

Vital capacity = 5050 ml

Tidal volume = 550 ml

Residual volume = 1000 ml

Breathing frequency = 12 breaths/min

Dead space volume = 150 ml

A) 606 L/min
B) 4.9 L/min
C) 588 L/min
D) 6.6 L/min

25) Select the one **correct** statement.

A) A decrease in plasma volume will result in higher levels of atrial natriuretic peptides in the blood.
B) Secretion of renin is stimulated by the hormone aldosterone.
C) Blocking the activity of angiotensin converting enzyme (ACE) would result in more sodium appearing in the urine.
D) Long-standing obstruction of the urethra may cause an increase in the glomerular filtration rate as urine backs up into the kidneys.

26) What is the most important factor in determining resistance to flow in a vessel?

A) Blood volume
B) Viscosity of blood
C) Radius of a vessel
D) Length of a vessel

27) Which of the following statements regarding graded potentials is **FALSE**?

A) Graded potentials can summate
B) Graded potentials are non-decremental
C) Graded potentials determine whether or not an action potential will occur
D) Graded potentials spread by electrotonic conduction

28) Which of the following statement regarding neurotransmitters is **FALSE**?

A) GABA is a very common transmitter for generating EPSPs
B) Amino acid neurotransmitters are the MOST abundant transmitters in the CNS
C) The enzyme responsible for making Nitric Oxide (NO) is nitric oxide synthase
D) Histamine in the CNS acts as neurotransmitter and its main location of action is the hypothalamus

29) Identify the one **INCORRECT** statement regarding excitation-contraction coupling:

A) In skeletal muscle, the Ca^{2+} that triggers cross-bridge cycling binds to myosin.

B) In smooth muscle contraction, the primary source of Ca^{2+} is extracellular.

C) In smooth muscle, the amount of internally released Ca^{2+} is much smaller than in skeletal muscle.

D) Depolarization of smooth muscle can be mediated by 3 different types of plasmalemmal channels all passing Ca^{2+} as a primary ion.

30) Regarding the function of the left ventricle identify the one **INCORRECT** statement:

A) The left ventricle pumps more blood with each beat than the right ventricle.

B) The left ventricle pumps blood at much higher pressure than the right ventricle.

C) The left ventricle pumps blood against a higher pressure than the right ventricle.

D) The left ventricle wall is thicker than the right ventricle wall.

31) Choose the one **INCORRECT** statement regarding the function of cardiac muscle:

A) Electrical signals propagate through the myocardium via gap junctions.

B) The absolute refractory period is almost as long as the duration of contraction.

C) The peak tension of muscle contraction coincides with the end of the action potential plateau phase.

D) The sarcoplasmic reticulum (SR) is the only source of Ca^{2+} that is used in muscle contraction.

32) Identify the one **INCORRECT** statement regarding issues related to tissue transplantation or blood donation.

A) The only concern in bone marrow transplantation is the immune response of the host.

B) Type A blood causes a reaction in a Type B individual because of the presence of Type A antibodies.

C) Drugs that suppress the immune system are used to minimize the chance of tissue rejection.

D) The Major Histocompatibility Complex (MHC) does **NOT** play a role in the reaction seen when mismatched blood is transfused.

SECTION 2. Choose the one alternative that best completes the statement or answers the question. Each question is worth 0.5 marks

33) Osteoporosis:
A) increases production of osteoid
B) decreases the incidence of bone breaks and fractures
C) is caused by a relative excess of osteoclast function
D) is caused by excess consumption of calcium and vitamin D

34) Epinephrine:
A) promotes energy mobilization by stimulating glycogenesis and lipolysis
B) increases the diameter of the airways to help bring more air into the lungs
C) shunts blood from the skin and gut and decreases cardiac output
D) is converted to norepinephrine in the adrenal medulla

35) Refer to Figure 1 at the end of the examination questions showing the measurement of metabolic rates in three different rats (Tx = thyroidectomised and Hypox = hypophysectomized). What was the purpose of the soda lime found at the bottom of the glass chamber?
A) provides a source of oxygen
B) provides a system to measure oxygen
C) produces carbon dioxide
D) absorbs carbon dioxide given off by the rats

36) Mature ova develop from a pool of oogonia that:
A) are fixed at birth with only a few ever developing into mature ova
B) undergo mitosis to maintain the number of oogonia as they mature into ova
C) are fixed in number at birth with each one developing into a mature ova
D) will expand until puberty when the ova begin to mature

37) A section of the small intestine has been removed to study intermittent propulsive movements. What would cause the greatest number of contractions in both the circular and longitudinal muscles?
A) Application of noradrenaline
B) Inhibition of the intramural plexus
C) Application of acetylcholine
D) Inhibition of the extramural plexus

38) Which process underlies the decreased production of sweat during exercise that occurs after gradual acclimatization to hot and humid conditions?
A) A neurologically mediated decrease in sweat gland activity
B) Decreased secretion of antidiuretic hormone
C) Decreased secretion of paracrine factors that stimulate sweat production
D) Increased secretion of aldosterone

39) Stephen is working in a diagnostic lab that examines the various cells that are part of the gastric pits in the stomach. He isolates one particular cell type that produces a substance that causes parietal cells to secrete hydrochloric acid (HCl). Which cell type has Stephen most likely isolated?

A) Neck cells
B) Chief cells
C) D cells
D) Enterochromaffin-like cells

40) Inhibin is secreted from the _____ and acts to reduce the secretion of _____.

A) Sertoli cells : FSH
B) Leydig cells : LH
C) anterior pituitary : FSH
D) Leydig cells : FSH

41) The most abundant form of thyroid hormone secreted into the blood is _____; the most active form at the target cell is _____; and the form that provides long-loop negative feedback is _____.

A) T4 : T3 : T4
B) T3 : T3 : T4
C) T3 : T4 : T3
D) T4 : T4 : T3

42) Which of the following is a function of oxytocin?

A) inhibits contraction of smooth muscle in breast tissue
B) inhibits uterine contractions
C) stimulates prolactin release
D) stimulates uterine contractions

43) Which mechanism mediates the abrupt increase in ventilation that occurs at the start of exercise?

A) A decline in P_{O2} levels
B) A rise in P_{CO2} levels
C) Cortical and proprioceptive activation of respiratory centers
D) Exercise induced changes in the pH of the blood

44) What occurs when BAPNA is added to a solution pH = 2 containing pepsin?

A) The solution remains colourless
B) Pepsin is inactive
C) The solution turns yellow
D) BAPNA is **not** hydrolyzed

45) Some breast cancer patients are treated with a drug called tamoxifen, an estrogen receptor antagonist. What best describes the degree of change in bone density in breast cancer patients AFTER long-term treatment with tamoxifen?

A) T-score will be more negative: increase in bone density
B) T-score will be more negative: loss of bone density
C) T-score will be more positive: loss of bone density
D) T-score will be more positive: increase in bone density

46) Patients with biliary atresia have blockage in the flow of bile from the liver to the gallbladder. Imagine that you added a sample from the patient's duodenum to test lipase activity and compared it to a control sample taken from a person without gastrointestinal problems. Specifically, you added the sample to a test tube containing vegetable oil in a buffer with a pH of 7.0. What would you expect to observe with the patient's sample in comparison to the control?

A) Tube with patient's sample will be more acidic: elevated triglyceride breakdown
B) Tube with patient's sample will be alkaline: no clumping of triglycerides
C) Tube with patient's sample will be more alkaline: reduced triglyceride breakdown
D) Tube with patient's sample will be more acidic: lipase activity stimulated

47) During an amateur athletic event in Johannesburg, South Africa, one of the female participants suffered from heatstroke. Which of the following is **NOT** a symptom this condition?

A) Nausea
B) Mental confusion
C) Hypoglycemia
D) Dizziness

48) During spermatogenesis, the _____ are haploid cells that require further differentiation in order to become functional spermatozoa.

A) spermatids
B) secondary spermatocytes
C) spermatogonia
D) primary spermatocytes

49) Digestive enzymes are:

A) substrate non-specific
B) pH independent
C) catabolic
D) temperature independent

50) The enzyme that catalyzes synthesis of cAMP is called _____ and is activated by _____.

A) phosphodiesterase : a G_S protein
B) adenylate cyclase : a G_i protein
C) phosphodiesterase : a G_i protein
D) adenylate cyclase : a G_S protein

51) Thyroid hormone interacts with receptors in which part of the cell?
A) Endoplasmic reticulum
B) Cell membrane
C) Nucleus
D) Ribosomes

52) You subjected a sample to both an IKI assay and a Benedict's assay. With the IKI assay, the sample turned blue-black, and with the Benedict's assay, the sample turned bright blue. What does the sample contain?
A) Maltose and amylase
B) Starch only
C) Maltose only
D) Starch and maltose

53) Which of the following is a function of osteoclasts?
A) release enzymes that degrade the osteoid
B) secrete osteoid
C) breakdown cartilage
D) form cartilage

54) When does the second meiotic division in oogenesis occur?
A) when the oocyte reaches the uterine tube
B) when the female reaches puberty
C) when the oocyte is released from the ovary
D) when the oocyte has been fertilized

55) A young woman has puffy skin and a hoarse voice. Her plasma level of TSH is low but increases markedly when she is given TRH. She probably has:
A) hyperthyroidism due to a hypothalamic tumour
B) hypothyroidism due to a primary abnormality in the hypothalamus
C) hypothyroidism due to a primary abnormality in the pituitary gland
D) hyperthyroidism due to a primary abnormality in the pituitary gland

56) An individual with pancreatic cancer has to undergo a Whipple surgery where the pancreas and the pancreatic duct have to be removed. What part of the small intestine would be affected the most by this surgery?
A) Jejunum
B) Duodenum
C) Pyloric valve
D) Ileum

57) In the PhysioEx exercise on hormone replacement therapy, what substance was injected into rats to serve as a control?
A) Water
B) Calcitonin
C) Saline
D) Estrogen

58) Which of the following is **NOT** a characteristic of Cushing's syndrome?
A) deposition of fat in the abdomen and in the face
B) increased risk of infections and bruising
C) hyposecretion of cortisol due to increased negative feedback at the hypothalamus and anterior pituitary
D) protein depletion (wasting)

59) What is the maximal increase in muscle blood flow that can occur during strenuous exercise?
A) 25-fold increase
B) 10-fold increase
C) 15-fold increase
D) 5-fold increase

60) A new hormone that is similar in both structure and function to cholecystokinin has been discovered. What effect would this most likely cause?
A) Release of maltase
B) Release of gastrin
C) Release of pancreatic bicarbonate
D) Release of enterokinase

61) A high plasma Ca^{2+} level causes:
A) bone demineralization
B) increased gastrointestinal absorption of vitamin D
C) decreased secretion of calcitonin
D) decreased formation of 1,25-dihydroxycholecalciferol

62) Which of the following is a true statement regarding chemical messengers?
A) thyroid hormones and catecholamines are derived from the amino acid tyrosine
B) lipophilic hormones bind directly to the region of DNA known as the hormone response element to initiate gene transcription
C) receptors for hydrophilic hormones are located in the cell nucleus or cytoplasm
D) peptide hormones must bind to carrier proteins to circulate in the blood

63) Jonathan has found an LGR5 positive self-renewing cell. Where would he most likely have isolated this cell?
A) Submucosal layer
B) Base of the gastric pit
C) Parotid gland
D) Exocrine pancreas

64) During a routine procedure, Bill's ileocecal valve was damaged. What would be the most likely finding following damage to this valve?
A) Impaired fatty acid absorption
B) Decreased microvilli number
C) Constipation
D) Heartburn

65) Refer to Figure 1 at the end of the examination questions showing the measurement of metabolic rates in three different rats (Tx = thyroidectomised and Hypox = hypophysectomized). What was the effect of propylthiouracil?
A) inhibits the production of TSH
B) promotes the production of TSH
C) promotes the production of thyroxine
D) inhibits the production of thyroxine

66) Kathleen is working on developing a new drug that acts as a urease inhibitor. If successful, what would be affected the most?
A) Serous mucous production
B) Peptic ulcers
C) Secretion of bicarbonate
D) Carbohydrate digestion

67) What was added to aid in the digestion of cellulose in the PhysioEx exercise on digestive function?
A) Bacteria
B) Amylase
C) Cellulase
D) Pepsin

68) Full development and function of the seminiferous tubules requires:
A) Testosterone only
B) LH only
C) FSH only
D) androgens and FSH

69) When do muscles use the phosphagen energy system?
A) When extra power is needed during intermediate races such as 200-800 meter runs
B) During muscle recovery from extreme fatigue
C) During short-lived power surges
D) During prolonged athletic activity

70) Once a steroid hormone is synthesized, it is _____.
A) bound to albumin until released from the cell
B) stored in a vesicle until released via exocytocis
C) immediately capable of diffusing across the membrane
D) bound to the mitochondria until released

71) Sachin has created a new molecule that increases the secretion of mucous in the fundus. What hormone would his drug resemble?
A) GIP
B) Gastrin
C) Cholecystokinin
D) Intrinsic factor

72) Which statement about diabetes mellitus is correct?
A) Untreated or poorly controlled diabetes represent a state of anabolism.
B) Long-term complications of diabetes can include cardiovascular disease, blindness, kidney disease, and nerve damage.
C) Both type 1 diabetes and type 2 diabetes are characterized by relative insulin excess.
D) Hypoglycemia is one of the most serious acute complications of untreated diabetes.

73) What is the correct ratio of ATP used for contraction vs. heat generation in exercising skeletal muscles?
A) 1 ATP for contraction : 1 ATP for heat generation
B) 1 ATP for contraction : 2 ATP for heat generation
C) 1 ATP for contraction : 5 ATP for heat generation
D) 2 ATP for contraction : 3 ATP for heat generation

74) While working as a graduate student, Christina is asked by her supervisor to find a region of the GI tract that produces epidermal growth factor. What tissue should she suggest?
A) Parietal cells
B) G cells of the gastric pit
C) Pancreas
D) Submandibular gland

75) What does the surge in plasma luteinizing hormone that occurs at the beginning of the luteal phase trigger?
A) stimulation of the first meiotic division only
B) both ovulation and stimulation of the first meiotic division
C) both ovulation and development of the corpus luteum
D) development of the corpus luteum only

76) Salivary amylase is most active under which conditions?
A) pH 2.0 and freezing
B) pH 9.0 and freezing
C) Neutral pH and 37°C
D) pH 2.0 and 37°C

77) Samantha is a pathologist who is examining the abdominopelvic cavity of an elderly individual. During her examination she wants to move the liver in order to view other structures within this cavity. What structure would Samantha cut to detach the liver from the cavity wall?
A) Falciform ligament
B) Greater omentum
C) Lesser omentum
D) Peritoneal membrane

78) A scientist finds that infusion of growth hormone into the median eminence of the hypothalamus inhibits the secretion of growth hormone and concludes that this proves that growth hormone feeds back to inhibit GHRH secretion. Do you accept this conclusion?
A) yes, because GH binds to GHRH and inactivates it
B) no, because substances placed in the median eminence could be transported to the anterior pituitary
C) yes, because systemically administered GH inhibits GH secretion
D) no, because GH does not cross the blood brain barrier

79) In the PhysioEx exercises, what reagent was used to detect the presence of starch?
A) Amylase
B) IKI
C) BAPNA
D) Benedict's reagent

80) Refer to Figure 1 at the end of the examination questions showing the measurement of metabolic rates in three different rats (Tx = thyroidectomised and Hypox = hypophysectomized). If you injected each rat with thyroid-stimulating hormone (TSH), which one would have the **lowest** metabolic rate, and why?
A) The normal rat: TSH stimulates excess thyroid hormone production.
B) The thyroidectomized-Tx rat: TSH inhibits thyroid hormone production in this type of rat.
C) The Hypox rat: TSH inhibits the activity of the hypothalamus.
D) The Tx rat: rat unable to make thyroid hormones.

81) An undergraduate student tells you that he has had surgery to remove a portion of his GI tract before he suddenly passes out due to pernicious anemia. What GI tract region was most likely operated on?
A) Fundus
B) Pancreas
C) Cystic duct
D) Common bile duct

82) The release of T3 and T4 occurs through _____, and these hormones can bind to _____ to be transported in the bloodstream.
A) endocytosis : transthyrethin
B) exocytosis : transthyrethin
C) diffusion : albumin
D) exocytosis : thyroxine-binding globulin

83) Imagine that an HPLC setup was used to measure the cortisol and ACTH levels in plasma samples from different patients. The cortisol concentration of an individual with a slightly enlarged adrenal gland was: 89 mcg/dl (normal = 23 mcg/dl). What can you conclude about the ACTH level in this individual in comparison to someone with a normal cortisol concentration, and why?
A) ACTH will be lower, since increased cortisol inhibits ACTH through negative feedback.
B) ACTH will be lower, since increased cortisol stimulates CRH through negative feedback.
C) ACTH will be higher, since increased cortisol stimulates CRH though positive feedback.
D) ACTH will be higher, since increased cortisol stimulates ACTH through positive feedback.

84) Diet companies are working to block over-eating. What naturally occurring substance within the human body would these companies most likely block to reduce hunger/appetite?
A) Neuropeptide Y
B) Melanocortin
C) Lipoprotein Lipase
D) Leptin

85) Which of the following hormones decreases lipolysis?
A) epinephrine
B) insulin
C) glucagon
D) cortisol

86) _____ would stimulate ADH secretion into the systemic circulation from the _____.
A) high blood pressure : hypothalamic paraventricular nucleus
B) high plasma osmolarity : posterior pituitary
C) low blood pressure : anterior pituitary
D) low plasma osmolarity : hypothalamic neurosecretory cells

87) What happens to glucose during the postabsorptive state?

A) glucose is stored as glycogen and spared for use by the nervous system.

B) glucose is synthesized by gluconeogenesis and glycolysis and is the primary energy source for all body cells.

C) glucose is stored as glycogen and is the primary energy source for all body cells.

D) glucose is synthesized by gluconeogenesis and glycolysis and is spared for use by the nervous system.

88) Which of the following is an effect of aldosterone on principal cells?

A) decreased number of Na^+/K^+ pumps in the basolateral membrane

B) decreased number of open Na^+ and K^+ channels in the basolateral membrane

C) increased number of open Na^+ and K^+ channels in the apical membrane

D) increased number of Na^+/K^+ pumps in the apical membrane

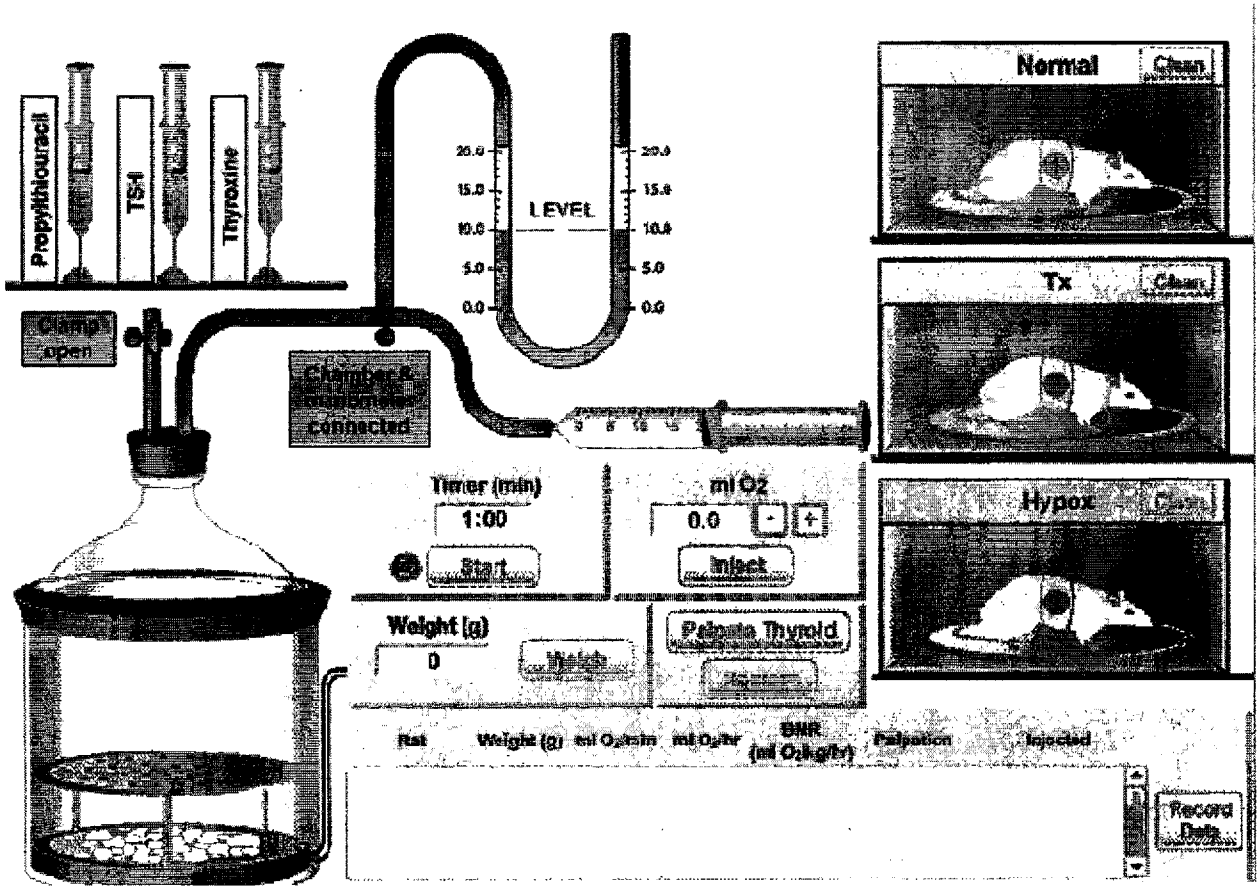

Figure 1: Experiment measuring the metabolic rates of rats.