First Name: _____ Surname: _____

Student #: _____ _____ _____

YORK UNIVERSITY

FACULTY OF HEALTH

School of Kinesiology and Health Science

Kinesiology 2049 3.0

Research Methods in Kinesiology

Quiz 1 (Version A) October 31, 2011

- This exam is worth 20% of the total course mark.
- **NOTE**: The answers to the multiple-choice questions are to be done on the separate answer sheet provided. **Select the best answer for each question**.
- **Calculators are not permitted**.
- Time allowed - 45 minutes.
- Neatly print your name in the space provided above.

MARK = _____
39

1. “Before-and-after” photographs in magazines are an example of:

   A. parity claims
   B. advertising claims
   C. testimonials
   D. statistics
   E. facts

2. The words “automobile”, “autotrophy”, and “autonomic” have a common prefix. What does the prefix “**auto**” mean?

   A. Fast
   B. Self
   C. Winner
   D. Body

3. What does the term “**epi**” mean?

   A. Upon/attached to
   B. Across
   C. Good/true
   D. Small
   E. Within/inside

4. The concept of Number Needed to Treat [NNT], was discussed in lectures. Determine the NNT in the following example. Researchers give an analgesic agent to 100 people and find that 60 have their pain relieved within two hours. But if we give those same 100 people a placebo tablet containing no active drug, we observe pain relief in only 10. The NNT for this example is:

   A. (60% - 10%)/1 = 50
   B. 1/ (60% - 10%) = 2
   C. (100% - 60%) / 1 = 40
   D. (100% - 10%) / 1 = 90
   E. (100%/10%) – 1 = 9
   F. (100% - 40%) / 1 = 60

As discussed in class, [and circulated via Moodle], the 2011 Nobel Prize for research in medicine was awarded jointly to a Canadian-born researcher [Ralph Steinman], who discovered a class of cell in the immune system referred to as dendritic cells. Answer **the next 2 questions** based on this research.

5. Why was this finding regarded skeptically?

   A. The cells were too small to observe
   B. The results could not be replicated
   C. The research was done on animal cells and not human cells
   D. The finding was contrary to the laws of nature
   E. Research done by Canadians is less acceptable to the world community

6. The fact that Steinman's initial discovery was made in _____, would cause this type of research to be labelled as _____ research.

   A. 2009; applied
   B. 2009; basic
   C. 2010; quantitative
   D. 2010; qualitative
   E. 1973; basic
   F. 1973; longitudinal

7. Which of the following best describes quantitative research?

   A. the collection of non-numerical data
   B. an attempt to confirm the researcher's hypotheses
   C. research that is exploratory
   D. research that attempts to generate a new theory

8. A variable that is presumed to cause a change in another variable is called a(n):

   A. categorical variable
   B. dependent variable
   C. independent variable
   D. intervening variable

9. All of the following are common characteristics of experimental research except:

   A. it relies primarily on the collection of numerical data
   B. it can produce important knowledge about cause and effect
   C. it uses the deductive scientific method
   D. it rarely is conducted in a controlled setting or environment

10. Qualitative research is often exploratory and has all of the following characteristics except:

    A. it is typically used when a great deal is already known about the topic of interest
    B. it relies on the collection of non-numerical data such as words and pictures
    C. it is used to generate hypotheses and develop theory about phenomena in the world
    D. it uses the inductive scientific method

11. Which of the following includes examples of quantitative variables?

    A. age, temperature, income, height
    B. grade point average, anxiety level, reading performance
    C. gender, religion, ethnic group
    D. both a and b

12. How are "everyday ways of knowing" (like intuition, tradition, and authority) different from scholarly ways of knowing (research)?

A. Research is valid; everyday ways of knowing are invalid.
B. Research is formal; everyday ways of knowing are informal.
C. Research examines its assumptions; everyday ways of knowing do not.
D. Research depends upon a historical context; everyday ways of knowing are “ahistorical”.
E. All of the above.

13. "A characteristic, attribute, or behaviour of an individual that takes on different values for different individuals and can be measured or observed" best defines which of the following?

A. hypothesis
B. research question
C. theory
D. concept
E. variable

14. "The set of individuals or objects whose characteristics or behaviour are of interest" best defines which of the following?

A. sample
B. small group
C. variable
D. value
E. population

15. Which of the following is a characteristic of a "good" hypothesis?

A. it is testable
B. it is compatible with current scientific knowledge
C. it is logically consistent
D. it is as "parsimonious" or simple as possible
E. all of the above

16. In a scholarly journal article or research report, where would you find a discussion of the theory upon which the research is based?

A. abstract
B. literature review
C. methodology
D. discussion
E. references

17. A scientific explanation that remains tentative until it has been adequately tested is called a(n)

A. theory.
B. law.
C. hypothesis.
D. experiment.

Read the following paragraph and answer the **next two questions**

A researcher suspects that television sets emit energy that damages people's vision. To test her theory, she observes a sample of children (none of whom wear glasses) and measures how far away they sit from the television when they watch. Two years later, she observes the children again, this time seeing how many are wearing glasses. Her data suggest that young children who sit close to the television set are more often diagnosed as needing glasses than children who sit further away, and announces that her theory is supported.

18. In this situation, "distance from the television while watching" is what kind of variable?

A. confounding variable
B. independent variable
C. dependent variable
D. antecedent variable
E. moderating variable

19. What kind of variable is "whether or not a child wears glasses"?

A. confounding variable
B. independent variable
C. dependent variable
D. antecedent variable
E. moderating variable

20. In a study of the effects of alcohol on driving ability, the control group should be given

A. a high dosage of alcohol.
B. one-half the dosage given the experimental group.
C. a driving test before and after drinking alcohol.
D. no alcohol at all.

21. In an experiment to find out if taking ginseng increases IQ scores, the IQ scores would be

A. the independent variable.
B. a control variable.
C. an extraneous variable.
D. the dependent variable.

22. In order to summarize or organize a series of observations in some meaningful way, researchers may develop

A. hypotheses.
B. experiments.
C. surveys.
D. theories.

23. A simple experiment has two groups of subjects called

A. the dependent group and the independent group.
B. the extraneous group and the independent group.
C. the before group and the after group.
D. the control group and the experimental group.

24. I work at a university, and my research is designed to be of immediate use in the classroom. My research would be called

A. basic.
B. applied.
C. impractical.
D. ethical.

25. In the simplest experiment, the two groups of subjects are treated exactly alike except for the _____ variable.

A. Independent
B. Dependent
C. Extraneous
D. Control

26. The Excel worksheet to the right is used to select subjects for a particular study based on specific characteristics. [Subjects must meet **one of two** criterion 1. be Married 2. be older than 25]. Column A and B are named variables. The formula for cells C2:C10 is:

	A	B	C
1	**Marital Status**	**Age**	**Status**
2	Single	19	No
3	Single	24	No
4	Married	26	Select
5	Single	32	Select
6	Married	32	Select
7	Married	36	Select
8	Single	16	No
9	Engaged	23	No
10	Single	22	No
11			

A. =IF(OR(Marital_Status="Married",Age>25),"Select","No")
B. =IF(Marital_Status=”Married”,”Select”,”No”)
C. =IF(AND(Marital_Status=”Married”,Age>25),”Select”,”No”)
D. =IF(Marital_Status=”Single”,”No”, IF(Age>25,”Select”,”No”)
E. The IF function should not be used to calculate values for the status column.

27. To calculate the number of individuals who will be without partners when a group of 25 students are divided into 4 groups, which of the following functions is used in excel?

A. IF
B. OR
C. VLOOKUP
D. MOD
E. COUNT

28. In Lab # 1 you performed some searches using meta-search engines. What is the benefit of using a meta-search engine?

A. Meta-searches are faster than Google searches
B. Meta-searches are more comprehensive since they combine the results from numerous search engines
C. Meta-searches are more accurate than Google searches
D. Meta-searches use less computing resources
E. A and B
F. C and D

Consider the Excel worksheet to the right. Assume you enter the following formulas in the cells B7, B8 and B9 respectively:

=COUNT(B1:B6)
=COUNTA(B1:B6)
=COUNTIF(B1:B6,">56")

	A	B
1		Mary
2		Jack
3		22
4		44
5		55
6		66
7		

29. What will appear in the cells B7, B8 and B9 (in that order)?

A. 6, 4, 2
B. 6, 4, #NAME
C. 2, 6, 1
D. 4, 6, 1
E. 0, 2, 1

Consider the Excel spreadsheet to the right. It is similar to one that you constructed in Lab # 2. Answer the following questions based on this spreadsheet.

	A	B	C	D	E	F	G	H
3	a)	current gpa	5.0		1)	points earned to date		250
4	b)	credits completed at York	50		2)	total credits to be completed at York		120
5	c)	credits remaining	70		3)	total desired pts.		744
6	d)	desired gpa	6.2		4)	points to earn		494
7								
10		gpa needed on remaining credits	7.1					

30. What formula is entered for H3?

A. =C5*C3
B. =C4*C3
C. =C6*C3
D. =C6*C4

31. What formula for C10?

A. =H5/C6
B. =H3/C5
C. =H3/C6
D. =H6/C5

Assume you need to create an Excel worksheet that will determine the amount of "Shipping and Handling" that will be added to online purchases. For orders under $100.00 there will be a $5.00 charge added to the price.

E6 =

	A	B	C	D
1	shipping and handling example			
2				
3	For orders under $100 there is a a $5 S & H charge. For orders of 100 or more - no charge			
4			amount of sale	Shipping & Handling
5			$ 99.99	$5.00
6				
7				

32. What formula would you enter in to C5 to calculate the amount of the "Shipping and Handling"?

A. = IF(C5>100,5,0)
B. = IF(C5>99.99,0,5)
C. = IF(C5<99.99,5,0)
D. = IF(C5>100,0,5)

33. Consider the spreadsheet on the right. Assume you have named the block of cells in column C using the "Define" method. You have named this block of cells "numbers". You now click on the drop down icon beside the Name Box. If you select the name "numbers" from the list of 1 name, what range or block of cells will be selected.

F8 fx

numbers	C	D
1		
2	numbers	
3	23	
4	34	
5	45	
6	56	
7	67	
8		
9		

A. C2
B. C1:C7
C. C1:C8
D. C2:C7
E. C2:C8
F. C3:C7
G. C3:C8

Assume you have an Excel spreadsheet with a column of numbers. You create a formula to add up the column of numbers as shown in the figure to the right.

	A	B	C	D
1				
2			numbers	
3			23	
4			34	
5			45	
6			56	
7			67	
8				
9		Sum	225	
10				

34. Suppose you now hide rows 4, 5 and 6. What will happen to the value of the Sum in C9?

A. The sum will be smaller.
B. The sum will not change.
C. An error message will appear.
D. Excel will not allow you to hide rows if you are performing arithmetic operations.

	A	B	C
1			
2			numbers
3			23
7			67
8			
9		Sum	
10			

The conversion chart to the right was presented in Lab # 4. Use this chart to answer the next two questions.

Metric Conversion: A useful chart of units

Size Descriptor	Mass	Mass	Volume	Distance	Fold Difference	Fold Difference	Excel Scientific Notation
Big	Kilogram [kg]	---	Kilolitre [kl]	kilometre [km]	1000	10^{3}	1.0E+03
Middle	Gram [g]	mole	Litre [L]	metre	1	1	1.00E+00
Small	Milligram [mg]	millimole	millilitre [ml]	millimetre [mm]	1/1000	10^{-3}	1.00E-03
Smaller	Microgram [μg]	micromole [μ mole]	microlitre [μl]	micrometre [µm]	1/1,000,000	10^{-6}	1.00E-06
Even Smaller	Nanogram [ng]		nanolitre [nl]	nanometre [nm]	$1/10^{9}$	10^{-6}	1.00E-09
Really Small	Picogram [pg]		picolitre [pl]	picometre [pm]	$1/10^{12}$	10^{-6}	1.00E-12

35. You have an object that weighs 50 grams and want to convert this value to micrograms. The new value of the weight will be:

A. Smaller by a factor of 100
B. Smaller by a factor of 1000
C. Smaller by a factor of 1,000,000
D. Larger by a factor of 100
E. Larger by a factor of 1,000
F. Larger by a factor of 1,000,000

36. Which Excel formula will generate the correct answer for the problem above?

A. =50*I5
B. =50/I7
C. =50*H5
D. =50/I8
E. =50*I7

37. Assume that you are having trouble writing the correct formula for a complex spreadsheet problem. There are several formulas throughout the spreadsheet and you want to display all of the formulas so your friend can help you. What keyboard combination do you use to reveal all of the formulas in an Excel spreadsheet?

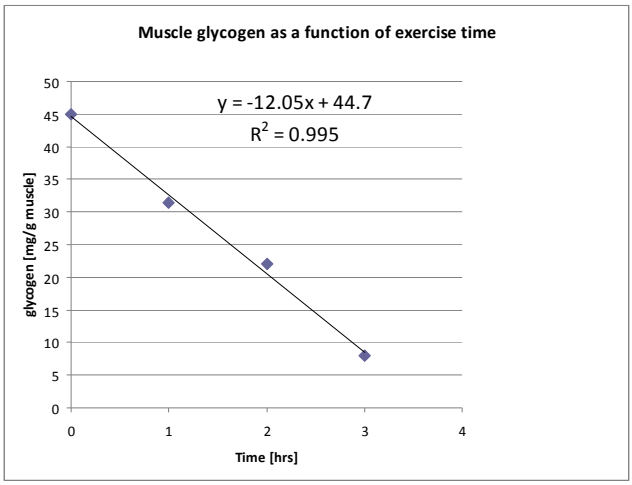
A. F9 (Windows and Apple)
B. Shift + F9 (Windows and Apple)
C. Ctrl + F9 (Windows) or [Command] + F9 (Apple)
D. Ctrl + ~ [tilde] (Windows) or Ctrl + ` [grave accent] (Apple)

38. Suppose you wanted to calculate the percent reduction in muscle glycogen after running a marathon. See the worksheet to the right for details. What formula would you enter in cell B6 to calculate the percent reduction in muscle glycogen?

	A	B
1		
2		Muscle glycogen mg/g
3	Before	46
4	After	8
5		
6	% reduction	

A. =(B4/B3)*100
B. =((B4-B3)/B3)*100
C. =((B4-B3)/B4)*100
D. =((B3-B4)/100

The figure on the right was presented during Lab # 4. The equation:
y = -12.05x + 44.7 was used to predict muscle glycogen after certain time periods of exercise.



39. Based on the formula presented in the figure to the right, [y = -12.05x + 44.7], what Excel formula would you enter in cell B5 to determine how long a person had been exercising if they had 30 g of glycogen in their muscle?

A. =B4+(B3*B2
B. =(B2-B4)/B3
C. =B2/B3*B4
D. =(B2-B4)*B3

	A	B
1		
2	muscle glycogen [y]	30
3	constant 1	-12.05
4	constant 2	44.7
5	value x	
6		

Function List

AND(logical1,logical2, ...)

AVERAGE(number1,number2, ...)

COUNT(value1,value2, ...)

COUNTA(value1,value2, ...)

COUNTIF(range,criteria)

DAVERAGE(database,field,criteria)

IF(logical_test,value_if_true,value_if_false)

OR(logical1,logical2,...)

MIN(number1,number2, ...)

MAX(number1,number2,...)

MEDIAN(number1,number2, ...)

MOD(number,divisor)

RANDBETWEEN(bottom,top)

STDEV(number1,number2,...)

SUM(number1,number2, ...)

VLOOKUP(lookup_value,table_array,col_index_num)