Name: _____

Student I.D.: _____

Lab Section/Time: _____

Date: Friday, February 9, 2007
Time: 50 minutes (8:30-9:20 a.m.)
Worth 20% of final mark.
Total Marks = 76

Instructor: Eric Roy

Kinesiology 222
Term Test #1

Winter 2007

INSTRUCTIONS:

1. Closed book exam
2. Use pen
3. Include formula and calculations in your answers
4. Calculators are permitted (memory cleared & statistical functions not used)
5. Marks are indicated for each question
6. Statistical tables are included at end of the test

Part ONE - Short Answer Section

Multiple Choice Section (12 marks)

For each question, circle the most appropriate answer

1. The correlation between reaction time and movement time is + 0.55. This value indicates:

   a) unexplained variance is 45%
   b) explained variance is 30%
   c) true variance is 80%
   d) error variance is 45%

2. The Normal Curve does not have

   a) $X_z = 0.0$
   b) $s_z = 1.0$
   c) $s^2_z = 1.0$
   d) end points

3. You are interested in determining whether there is a relationship between reaction time to respond to starter's gun and the time to take the first step off the block. You divide the participants based on their reaction time at the median into two groups. One group has a shorter reaction time than the median, while the other group has a reaction time longer than the median. What is the appropriate correlation measure to use?

   a) Point biserial correlation
   b) Spearman rank order correlation
   c) Pearson correlation
   d) None of the above

4. In a distribution that is skewed the measure of central tendency that is least drawn toward the skewed end is:

   a) the mode
   b) the mean
   c) the median
   d) the kurtosis

5. The predicted weight of a person who is 81 inches tall is 205 lbs±1.5 lbs. The standard error of estimate for the regression equation is _____.

6. A particular distribution has a mean of 20 and $s^2 = 4$. What is the approximate percentile rank of a score of 22?

a) 34^{th}
b) 84^{th}
c) 50^{th}
d) None of the above

7. Which X scores are most distant from the mean of a distribution?

a) $z_X = 1.27$
b) 1.27 s units above the mean
c) $z_X = -1.27$
d) All of the above are equally distant from the mean

8. Which of the following measures reflects some aspect of the dispersion in a distribution of scores?

a) Standard deviation
b) Variance
c) Standard score
d) All of the above

9. The speed on your odometer is an example of the _____ scale of measurement

a) Nominal
b) Ordinal
c) Interval
d) Ratio

10. The fact that $\Sigma(X-\overline{X}) = 0$

a) is necessary to calculate standard deviation
b) is useless until the deviations are squared
c) provides a way to define the mean
d) All of the above are correct

11. For a grouped frequency distribution, the sum of all X^2 values is given by

a) $\Sigma(fX)^2$
b) ΣX^2
c) $\Sigma f(X)^2$
d) $\Sigma(f)^2(X)^2$

12. The Coefficient of Variation reduces when:

a) s increases
b) s decreases
c) $\overline{X}$ decreases
d) none of the above

Part TWO - Calculation Section

NOTE: Include computational formulae and your actual calculations in your answers.

13. Considering the data set below answer the following questions. (20 Marks)

	X	F	cf	fX	X^2	fX^2	$(fX)^2$
	9	3	99	27	81	243	729
	8	3	96	24	64	192	576
	7	16	93	112	49	784	12544
	6	18	77	108	36	648	11664
	5	22	59	110	25	550	12100
	4	20	37	80	16	320	6400
	3	10	17	30	9	90	900
	2	4	7	8	4	16	64
	1	3	3	3	1	3	9
∑	45	99	488	502	285	2846	44986

a. Range Formula Workings Answer

b. Mode Formula Workings Answer

c. Mean Formula Workings Answer

d. Median Formula Workings Answer

e. Standard Deviation Formula Workings Answer

14. When $\overline{X} = 30$, $s^2 = 9$,
(10 Marks)

i) Draw a diagram of the frequency distribution with the corresponding X, s and z score values

ii) Calculate the score value at the 80^{th} percentile using the z score method showing your calculations.

iii) Calculate the percentile rank for X = 37, showing your calculations.

15. For the data set below answer the following questions. (34 Marks)

Participant	X	Y	X^2	Y^2	XY
1	50	79	2500	6241	3950
2	52	170	2704	28900	8840
3	53	104	2809	10816	5512
4	53	92	2809	8464	4876
5	54	110	2916	12100	5940
6	57	132	3249	17424	7524
7	58	122	3364	14884	7076
8	59	139	3481	19321	8201
9	61	156	3721	24336	9516
10	65	134	4225	17956	8710
11	66	151	4356	22801	9966
12	68	156	4624	24336	10608
13	71	200	5041	40000	14200
14	72	201	5184	40401	14472
15	73	151	5329	22801	11023
16	75	200	5625	40000	15000
17	77	234	5929	54756	18018
18	78	221	6084	48841	17238
19	79	227	6241	51529	17933
20	81	230	6561	52900	18630
$\sum$	1302	3209	86752	558807	217233
$\overline{X}$	65.1	160.45			

a. Variance for X Formula Workings Answer

b. Variance for Y Formula Workings Answer

c.	Pearson correlation	Formula	Workings	Answer
d.	What is the predicted value of Y for X =70?	Formula	Workings	Answer
e.	What is the standard error of estimate?	Formula	Workings	Answer
f.	What is the range of values of Y for X = 70?	Formula	Workings	Answer