



KENYATTA UNIVERSITY

UNIVERSITY EXAMINATIONS 2010/2011

INSTITUTE OF OPEN LEARNING

EXAMINATION FOR THE DEGREE OF MASTER OF SCIENCE IN

PHYSICAL EDUCATION

HSS 500: STATISTICS IN RECREATION AND MOVEMENT SCIENCE

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DATE: WEDNESDAY 2ND FEBRUARY 2011

TIME: 2.00 P.M. - 5.00 P.M.

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INSTRUCTIONS

Answer any Three (3) questions.

1. a) Correlation and Regression are one and the same thing. Discuss. (8 marks)
- b) A physical Education teacher was interested in the topic of attitude and wanted to know if there was any relationship between attitude and a persons performance in physical activities. She tabulated the attitude Scores for 12 first year students. She then ranked the 12 students for performance in a physical fitness test battery. The attitude scores and the performance rankings are shown below.

Student	A	B	C	D	E	F	G	H	I	J	K	L
Attitude score	59	65	72	55	49	50	70	65	40	52	64	32
Performance Rank	4	2	6	5	8	3	9	7	11	1	12	10

Was there a relationship between vocabulary and creativity?

(16 marks)

2. a) Differentiate between
- i) Type I and Type II error (4 marks)
 - ii) Null versus alternative hypothesis (4 marks)
- b) Past experience has shown that the scores of students who take a certain statistics test are normally distributed with mean of 75 and variance 36. The recreation and movement science members of department would like to know whether this year's group of 16 students is typical. They decide to test the hypothesis that this year's students are typical versus the alternative that they are not typical. When the students take the test the average score is 82. What conclusion should be drawn. (16 marks)
3. a) Using examples from Recreation and Movement Science, explain the levels of measurement. (12 marks)
- b) Explain the need to organize data. (4 marks)
- c) Analyze any four graphical methods of data presentation. (8 marks)
4. The data in the table below relates the weekly maintenance cost (£) to the age (in months) of ten machines of similar type in a manufacturing company. Find the least square regression line of maintenance cost on age and use this to predict the maintenance cost for a machine of this type which is 40 months old. (24 marks)

Machine	1	2	3	4	5	6	7	8	9	10
Age(X)	5	10	15	20	30	30	30	50	50	60
Cost (Y)	190	240	250	300	310	335	300	300	350	395

5. a) Expound on the chief properties of the normal distribution. (12 marks)
- b) The chief designer in the Sports Technology department has designed a new set of protective gear for rugby players. The designer has collected physical measurements data on 1800 players whose mean chest circumference is 39 inches with a standard deviation of 2.5 inches. Assume that this group is a random sample of all players and that the distribution is normal.
- i) What percentage of the population has a chest measurement of over 44 inches? (3 marks)
- ii) If the designer wants his design to fit the middle 99% of all players what range of chest measurements will be over 44 inches? (3 marks)
- iii) A husky lad claims that he is in the top 1% in chest expansion. What would his measurements have to be in order for him to make this claim? (3 marks)
- iv) What is the probability that a rugby player, chosen at random would have a chest measurement of less than 37 inches. (3 marks)