KISII UNIVERSITY

UNIVERSITY EXAMINATIONS

FIRST YEAR EXAMINATION FOR THE AWARD OF THE DEGREE OF BACHELOR OF EDUCATION (ARTS/SCIENCE) SECOND SEMESTER 2016/2017 (SEPTEMBER - DECEMBER, 2016)

EPSC 123: STATISTICAL METHODS IN EDUCATION

STREAM: Y1S2

TIME: 2 HOURS

DAY: THURSDAY, 3:00-5:00 PM

DATE: 15/12/2016

INSTRUCTIONS

1. Do not write anything on this question Paper.
2. Answer question one and any other two questions.
3. Show all your calculations.

QUESTION ONE

(a) A student scored 65% in mathematics and 61% in physics. In which subject did the student perform well if the class mean and standard deviation were 60%, 5 and 64, 7 for mathematics and physics respectively.

[10 marks]

(b) The sample mean of a mathematics test for 25 students is 50. The population variance for the test is 16. Construct a 95% confidence interval for the population.

[5 marks]

(c) Citing relevant examples, explain why a prospective teacher needs to undertake statistical methods in education.

[4 marks]

(d) Distinguish between the following terms as used in statistical methods in education;

(i) Type one and type two error [6 marks]
(ii) Sample and population
(iii) Nominal and ordinal scales of measurement

(e) In an examination administered to 200 candidates the mean score was 64 and the standard deviation was 15. Assuming that the scores were normally distributed

(i) Determine the number of candidates scoring between 60 and 80
[3 marks]

(ii) Number of students scoring below 40% [3 marks]

(iii) The pass mark if 25% of the candidates who attempted the examination qualified to join university. [4 marks]

QUESTION TWO

The following frequency table shows marks scored by 40 from three students in a mathematics test.

Marks	Frequency
65-69	3
60-64	4
55-59	8
50-54	10
45-49	8
40-44	5
35-39	2

(a) Find the stanine for students who scored 57% in the examination.
[10 marks]

(b) Find the pass mark if 25% of the class passed the examination.
[10 marks]

QUESTION THREE

The following data were obtained from a form three mathematics mark sheet

Marks	Frequency
50-56	3
57-63	6
64-70	13
71-77	15
78-84	9
85-91	3
92-98	1

Required:
(a) Find the mean, median and the mode. [10 marks]
(b) Describe the type of distribution. [2 marks]

(c) Find the standard deviation and comment on the variability of learners ability.

[8 marks]

★ QUESTION FOUR

In an end of year examination in mathematics one form three class of 40 students had a mean of 72 with a standard deviation of 8. Another class of 50 students had a mean grade of 78 and a standard deviation of 7. Is there any significant difference in the performance of the two classes at 0.05 level of significance.

[20 marks]

QUESTION FIVE

(a) Define the following terms;

   (i)   Parameters
   (ii)   Sckwness
   (iii) Confidence interval

[6 marks]

(b) The following marks were obtained by 12 students in a mathematics and chemistry examination

Chemistry	65	63	67	64	68	62	70	66	68	67	69	70
Mathematics	68	66	68	65	69	66	68	65	71	67	68	70

Determine if there is a logical relationship between the performance in the two subjects using the person product moment correction.

[14 marks]