

  
**KISII UNIVERSITY**  
**UNIVERSITY EXAMINATIONS**

FIRST YEAR EXAMINATION FOR THE AWARD OF  
THE DEGREE OF BACHELOR OF EDUCATION SCIENCE  
SECOND SEMESTER 2015/2016  
(JANUARY-APRIL 2016)

MATH 141: INTRODUCTORY STATISTICS.

**STREAM: Y1S2**

**TIME: 2 HOURS**

**DAY: TUESDAY 09.00 – 11.00**

**DATE: 05/04/2016**

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**INSTRUCTIONS**

1. *Do not write anything on this Question paper.*
2. *Answer All Questions.*

**QUESTION ONE [COMPULORY (30marks)]**

(a) Explain the meaning of the following:

- i. Mutually exclusive events
- ii. Permutation
- iii. Correlation
- iv. Questionnaire
- v. Survey
- vi. Sample space

**(6marks)**



### QUESTION TWO [20marks]

The following data represent the lengths (x) and breadths (y) of 12 eggs measured in millimeters.

x	22.3	23.6	24.2	22.6	22.3	22.3	22.1	23.3	22.2	22.2	21.8	23.2
y	16.5	17.1	17.3	17.0	16.8	16.4	17.2	16.8	16.7	16.2	16.6	16.4

(a) Draw a scatter diagram for the data. (8marks)

(b) Obtain the least squares regression line of y on x and plot this on the scatter diagram you have drawn above. (12marks)

### QUESTION THREE (20marks) ✓

(a) The following table shows the distribution of marks scored by 84 students in a certain discipline.

Marks	1-20	21-40	41-60	61-80	81-100
Number of students	10	18	24	14	18

Determine the following:

(i) The mean mark (4marks)

(ii) The median mark (4marks)

(iii) The modal mark (4marks)

(b) (i) A ball is drawn at random from a box containing 6 red balls, 4 white balls, and 5 blue balls. Determine the probability that it is red or white (2marks)

(ii) In how many ways can 10 people be seated on a bench if only 4 seats are available? (3marks)

(iii) In how many ways can a committee of 5 people be chosen out of 9 people? (3marks)

120  
362880  
362880x4

**QUESTION FOUR (20marks)**

(a) The stem plot below shows the times, recorded to the nearest second, of 12 people in a race.

Stem	leaf
1	2 3
1	5 5 6 6 6
1	7 9 9
2	0 1

Calculate the mean time and determine the standard deviation. **(12marks)**

(b) Two fair coins are tossed. Show the possible outcomes on a possibility space diagram and find:

- (i) The probability that one head is obtained
- (ii) The probability that two tails are obtained.

**(8marks)**

**QUESTION FIVE (20marks)**

(a) The following table shows marks scored by two students in 12 subjects.

Student A	65	63	67	64	68	62	70	66	68	67	69	71
Student B	68	66	68	65	69	66	68	65	71	67	68	70

Calculate

- (i) Product moment correlation coefficient
- (ii) Spearman's Rank coefficient of correlation.

**(10marks)**

**(10marks)**

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