



ES

(Knowledge for Development)

KIBABII UNIVERSITY
UNIVERSITY EXAMINATIONS
2017/2018 ACADEMIC YEAR
FIRST YEAR SECOND SEMESTER
MAIN EXAMINATION

FOR THE DEGREE OF BACHELOR OF SCIENCE

COURSE CODE: STA 114

COURSE TITLE: INTRODUCTION TO STATISTICS

DATE: 31/07/18

TIME: 9 AM -11 AM

INSTRUCTIONS TO CANDIDATES

Answer Question One and Any other TWO Questions

TIME: 2 Hours

This Paper Consists of 4 Printed Pages. Please Turn Over.

QUESTION ONE COMPULSORY (30 MKS)

- a. What do you understand by the following Research terms:
- i. Statistics
 - ii. Research proposal
 - iii. Research sample
 - iv. Research design (8mks)
- b. The class performance in exam in a given term was recorded and the marks tabulated as below.

68	84	75	82	68	90	62	88	76	93
73	79	88	73	60	93	71	59	85	75
61	65	75	87	74	62	95	78	63	72
66	78	82	75	94	77	69	74	68	60
79	62	67	97	78	85	76	65	53	74

- (i) Construct a frequency distribution table of class size 5 i.e 50 – 54, 55-59,..... e.t.c (5mks)
- (iii) Compute the arithmetic mean, variance using assumed mean method, third and fourth moments about the mean for this distribution. (11mks)
- (iv) Compute the skewness and kurtosis, hence comment on the skewness and peakedness of this data. (6mks)

QUESTION TWO (20 MKS)

- a. Discuss five distinctions between qualitative and quantitative research paradigms. (10 mks)
- b. The table below shows the frequency distribution of masses of 100 male students in Baraka college.

Mass in Kg	Number of students
60-62	5
63-65	18
66-68	42
69-71	27
72-74	8

- (i) Compute the arithmetic mean for the above distribution using the modal midpoint as the assumed mean. (4mks)
- ii) Calculate the standard deviation of the distribution and comment on your answer. (6mks)

QUESTION THREE (20 MKS)

(a) The following frequency distribution table shows how form one students performed in a CAT in Mamboleo secondary school.

Marks	20-30	30-40	40-50	50-60	60-70	70-80	80-90
No. of students	3	16	32	53	15	10	1

Compute; (i)Median

(ii)Quartile deviation

(iii)Harmonic mean

(iv)Geometric mean

(7 mks)

(b) Skewness refers to the measure of symmetry in any given data set. Given that performance of students in KCSE exam of 2017 was negatively skewed, comment with reason(s) on the performance of the examination. (3 mks)

(c) Discuss five ethical issues that should be observed when collecting data for research study. (10mks)

QUESTION FOUR (20 MKS)

a. Differentiate between:

- i. Random sampling and stratified sampling.
- ii. Descriptive statistics and inferential statistics
- iii. Population and Sample

(6 mks)

b. The following data shows how fertilizer used affect the maize yield for equal size plots in tonnes.

X – Fertilizer	1	3	4	6	8	9	11	14
Y - Maize Yield	1	2	4	4	5	7	8	9

Calculate the product moment correlation coefficient for the above data. Comment on the nature of the relationship that exist (6 mks)

c. An incomplete distribution is given below:

Variable	0 – 10	10 – 20	20 – 30	30 – 40	40 – 50	50 – 60	60 - 70
Frequency	10	20	?	40	?	25	15

You are given that the median value is 35.

- i. Find out the missing frequency, given that the total frequency = 170.

- ii. Calculate the arithmetic mean and variance of the complete data set. (8 mks)

QUESTION FIVE (20 MKS)

- (a) Discuss the six steps followed in undertaking scientific research process (12mks)
- (b) Describe four qualities of a good research instrument (8mks)