(Knowledge for Development)

KIBABII UNIVERSITY

UNIVERSITY EXAMINATIONS

2017/2018 ACADEMIC YEAR

FIRST YEAR SECOND SEMESTER

SPECIAL/SUPPLEMENTARY EXAMINATION

FOR THE DEGREE OF BACHELOR OF SCIENCE

COURSE CODE: STA 114

COURSE TITLE: INTRODUCTION TO STATISTICS

DATE: 11/10/18 **TIME:** 8 AM -10 AM

INSTRUCTIONS TO CANDIDATES

Answer Question One and Any other TWO Questions

TIME: 2 Hours

Question 1 Compulsory (30 marks)

(a)Define the following terms according to their use in research process.

i Research proposal (2mks)

ii Research sample (2mks)

iii Research design (2mks)

(b) State four qualities of an effective proposal. (4mks)

(c) State five sources of literature review when writing a proposal. (5mks)

(d) The weekly output in units of a manufacturing company has been recorded over the last 50 weeks. The data is as shown below

74	66	65	55	48	52	63	65	80	70
56	50	65	75	67	65	81	70	63	53
76	68	50	65	60	45	65	55	71	64
65	60	51	68	76	55	70	64	45	66
68	77	63	65	52	64	40	66	55	71

(i)Construct a stem and leaf diagram representing this data. (2 marks)

(ii)Construct a frequency distribution table of class size 5 i.e 40 – 44, 45-49, ...e.t.c (2 marks)

(iii)Compute the arithmetic mean, median and variance, for this distribution.

(9 marks)

(iv)Compute the skewness, hence comment on the skewness of this data.

(2 marks)

Question 2 (20 marks)

a. 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)

b. 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 missing frequency, given that the total frequency = 170.
ii. Calculate the variance of the complete data set.

(4 mks)

c. The following frequency distribution table shows how year one MasindeMuliro University Mathematics major students performed in a test.

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) Quartile deviation

(ii) Harmonic mean
(iii) Geometric mean (10 marks)

Question 3 (20 marks)

a. Skewness refers to the measure of symmetry in any given data set. Given that performance of students in STA 141 end semester examination was positively skewed, comment with reason(s) on the performance of the examination. (3 marks)

b. Discuss three distinctions between qualitative and quantitative research paradigms. **(6mks)**

c. 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 the quartile deviation and standard deviation of the distribution and comment on your standard deviation. (7mks)

Question **4 (20 marks)**

a. Differentiate between:

i. Correlation and regression.
ii. Descriptive statistics and inferential statistics
iii. Population and Sample **(6 marks)**

(a) Disscuss any four steps followed in undertaking scientific research process **(8mks)**

(b) Describe three qualities of a good research instrument **(6mks)**

Question 5 (20 marks)

a. Using the following frequency distribution table below:

Marks	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
No of students	2	10	16	24	33	16	12	10	6	1

Find:

i. Arithmetic mean
ii. Mode and Median
iii. Quartile deviation
iv. Karl-Pearson coefficient of skewness.

(12 marks)

b. Describe two limitations of the mode as a measure of central tendency (2 marks)

c. The ages of individuals in a manufacturing company is given below
62,21,26,32,56,36,37,39,53,40,54,42,44,61,68,28,33,56,57,37,52,39,40,54,43,43,63,30,34,68,35,38,50,38,52,41,51,44,41,42,43,45,46,45,47,48,49,45,46,48.

Construct:

i. a stem and leaf diagram
ii. Comment on the symmetry of the data. (6 marks)