(Knowledge for Development)

KIBABII UNIVERSITY

UNIVERSITY EXAMINATIONS

2020/2021 ACADEMIC YEAR

FIRST YEAR SECOND SEMESTER

SUPPLEMENTARY/SPECIAL EXAMINATION

FOR THE DEGREES OF BACHELOR OF SCIENCE

(PHYSICS AND CHEMISTRY)

COURSE CODE: STA 141

COURSE TITLE: INTRODUCTION TO STATISTICS

DATE: 30/09/2021   **TIME:** 11 AM – 1PM

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 (30 Marks) COMPULSORY

a. Below are the scores of two cricketers in 10 innings. Find who more 'consistent scorer' by indirect method is. (4mks)

A	204	68	150	30	70	95	60	76	24	19
B	99	190	130	94	80	89	69	85	65	40

b. Consider the following frequency distribution. Draw a histogram to represent this information and fit a frequency polygon on it. (6mks)

Class	5-9	10-14	15-19	20-24	25-29	30-34	35-39
freq	5	12	32	40	16	9	6

c. Estimate the mean, median and mode for the following frequency distribution: (8 mks)

Class	5-9	10-14	15-19	20-24	25-29	30-34	35-39
Freq	5	12	32	40	16	9	6

d. Find the harmonic and geometric mean of the frequency table below. (4mks)

x	13	14	15	16	17
f	2	5	13	7	3

e. The following figures relate to the size of capital of 285 companies: (8 mks)

Capital (in Ks lacs.)	1-5	6-10	11-15	16-20	21-25	26-30	31-35
No. of companies	20	27	29	38	48	53	70

Compute the Bowley's coefficients of skewness and interpret the results.

Question Two (20 Marks)

a) Discuss 10 essentials of a good questionnaire:[10 Marks]

b) Find the coefficient of Skewness α_3 and the coefficient of kurtosis α_4 for the data 5, 6, 7, 6, 9, 4, 5 [10 marks]

Question Three (20 Marks)

a) A study was conducted to find whether there is any relationship between the weight and blood pressure of an individual. The following set of data was arrived at from a clinical study. Determine the coefficient of correlation for this set of data. [6 marks]

Weight	78	86	72	82	80	86	84	89	68	71
Blood Pressure	140	160	134	144	180	176	174	178	128	132

b) Obtain the correlation coefficient of the following data [7 Marks]

Mean Temp. (x)	14.2	14.3	14.6	14.9	15.2	15.6	15.9
Pirates (y)	35000	45000	20000	15000	5000	400	17

c) The data given below are obtained from student records. (Grade Point Average (x) and Graduate Record exam score (y)) Calculate the rank correlation coefficient 'R' for the data. [7 Marks]

Subject	1	2	3	4	5	6	7	8	9	10
X	8.3	8.6	9.2	9.8	8.0	7.8	9.4	9.0	7.2	8.6
y	2300	2250	2380	2400	2000	2100	2360	2350	2000	2260

Question Four (20 Marks)

a) Explain the guiding considerations in the construction of questionnaire. [10 Marks]

b) Scores made by students in a statistics class in the mid-term and final examination are given in the table below. Develop a regression equation then use it to find the projected or estimated final scores of the students whose midterm score is 50 and comment about it.
[10 Marks]

Student	1	2	3	4	5	6	7	8	9	10
Mid term	98	66	100	96	88	45	76	60	74	82
Final	90	74	98	88	80	62	78	74	86	80

Question Five (20 Marks)

a) Differentiate between Survey and Experiment [10 Marks]

b) Using simple average of Price Relative Method find the price index for 2001, taking 1996 as base year from the following data: [10 Marks]

Commodity	Wheat	Rice	Sugar	Ghee	Tea
Price (in 1996) per unit	12	20	12	40	80
Price (in 2001) per unit	16	25	16	60	96