(Knowledge for Development)

KIBABII UNIVERSITY

UNIVERSITY EXAMINATIONS

2021/2022 ACADEMIC YEAR

SECOND YEAR FIRST SEMESTER

SPECIAL/SUPPLEMENTARY EXAMS

FOR THE DEGREE OF BACHELOR OF EDUCATION

COURSE CODE: ECO202

COURSE TITLE: STATISTICS FOR BUSINESS AND ECONOMICS

DATE: 20TH JULY, 2022 **TIME:** 8.00AM - 10.00AM

INSTRUCTIONS TO CANDIDATES

1. Answer Question One in Section A and Any other TWO (2) Questions in Section B

2.Question **one** carries **30**marks and each of the other two questions carry **20** marks each.

TIME: 2 Hours

KIBU observes ZERO tolerance to examination cheating

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

QUESTION ONE

a) The following table shows the number of motor registrations in a certain market for a term of 5 years and the sale of motor tyres by a firm in that market for the same period.

Year	Motor Registrations	No. of Tyres Sold
1	600	1,250
2	630	1,100
3	720	1,300
4	750	1,350
5	800	1,500

i) Estimate using the method of least squares the total sales function for this firm. 6 marks

ii) What is the economic significance of the regression coefficients? 4 marks

iii) Estimate sale of tyres when registration is 850. 4 marks

iv) The following is the distribution of height of a sample of workers in a factory.

Height in Inches	Number of Persons
62-63	2
63-64	6
64-65	14
65-66	16
66-67	8
67-68	3
68-69	1
Total	**50**

Calculate the following measures of central tendency.

a) mean, (4 marks)

b) median and (4 marks)

c) mode (4 marks)

v) Differentiate between discrete and continuous variables. (4 marks)

QUESTION TWO

a) Given the following are price-quantity data, with price quoted in Ksh. per kg and production in tonnes.

1980			1985	
Item	Price	Production	Price	Production
Fish	15	500	20	600
Mutton	18	590	23	640
Chicken	22	450	24	500

i) Find the Fisher's Ideal Index with 1980 as the base. 4 marks

ii) Using appropriate examples explain the use index numbers. 4 marks

b) Calculate Spearman's rank correlation coefficient between advertisement cost (X) and sales (Y) from the following data:

X: 39 65 62 90 82 75 25 98 36 78
Y: 47 53 58 86 62 68 60 91 51 84 (4 marks)

c) Find the probability that the value of the standard normal random variable will be:
i) between 0 and 1.74 (2 marks)
ii) less than -1.47 (2 marks)
iii) between 1.3 and 2 (2 marks)

d) At a parking place the average number of car-arrivals during a specified period of 15 minutes is 2. If the arrival process is well described by a Poisson process, find the probability that during a given period of 15 minutes
a) no car will arrive (1/2 mark)
b) at least two cars will arrive (1/2 mark)
c) at most three cars will arrive (2 marks)

QUESTION THREE

a) The weekly wage of 2000 workmen is normally distribution with mean wage of Ksh. 70,000 and wage standard deviation of 5,000. Estimate the number of workers whose weekly wages are

(i) betweenksh. 70,000 and ksh. 71,000

(ii) betweenksh. 69,000 and ksh. 73,000
(iii) more than ksh. 72000
(iv) less than ksh. 65,000 (20 marks)

QUESTION FOUR

a) A random sample of 200 married women were classified according to education levels and the number of children.

Education level number of children

	0 - 1	2 - 3	over 3
University	12	17	10
Secondary	19	42	17
Primary	14	37	32

Test at the 5% level of significance the hypothesis that the size of the family is independent of the level of education. (10 marks)

b) The employees of a certain firm are classified in the following way with regard to sex and skill (the figures are given as percentages).

	Skilled	Semiskilled	Unskilled
Male	20	14	14
Female	24	10	18

If an employee is selected at random from this firm what is the probability that this employee is:

i) Semi skilled (2.5 marks)

ii) A skilled male (2.5 marks)

iii) Either male or semi-skilled (2.5 marks)

iv) Female , if there is prio knowledge that the employee is unskilled. (2.5 marks)