

CHUKA



UNIVERSITY

## UNIVERSITY EXAMINATIONS

**EXAMINATION FOR THE AWARD OF DEGREE IN BACHELOR OF  
COMMERCE/BACHELOR OF COOPERATIVE MANAGEMENT/BACHELOR OF  
ENTREPRENEURSHIP AND SMALL BUSINESS MANAGEMENT**

**BCOM 262: BUSINESS STATISTICS****STREAMS: BCOM Y2S1 (ODEL)****TIME:2 HOURS****DAY/DATE: THURSDAY 13/04/2023****2.30 P.M. –4.30 P.M.****INSTRUCTIONS****Answer question ONE and other TWO questions****Question One (30 Marks)**

- a) Highlight five uses of statistics by a firm (5 marks)
- b) Explain the following statistical concepts
- i. Discrete and continuous variable (4 marks)
  - ii. Descriptive and inferential statistics (4 marks)
- c) The following data gives the experience of machine operators and their performance ratings as given by the number of good parts turned out per 100 pieces

Operator	1	2	3	4	5	6	7	8
Performance ratings Y	87	88	89	68	78	80	75	83
Experience (years) X	16	12	18	4	3	10	5	12

- i. Calculate the Pearson's correlation coefficient and interpret your result. (4 marks)
  - ii. Estimate the regression equation of performance ratings on experience and use it to forecast the performance rating if an operator has 7 years' experience (4 marks)
- d) The following table gives the distribution of companies according to size of capital.

Capital (Ksh. Million)	0-10	10-20	20-30	30-40	50-60	60-70
Number of companies	6	5	8	15	7	6

Required:

- i. Calculate the average capital for the companies (4 marks)
- ii. Calculate the 70<sup>th</sup> percentile (4 marks)

**QUESTION TWO (20 Marks)**

- a. Explain the following techniques of sampling (4 marks)
  - i. Systematic sampling (4 marks)
  - ii. Stratified sampling (4 marks)
- b. Consider the comparative data on household commodity prices in 2010 and 2018.

Commodity	2010		2018	
	Price	Quantity	Price	Quantity
Rice	20	8	40	6
Wheat	50	10	60	5
Fish	40	15	50	15
Milk	20	20	20	25

Form the above data, construct and interpret the following index numbers taking 2011 as the base period

- i. Laspeyres' price index (4 marks)
- ii. Paasche's price index (4 marks)
- c. Explain the usefulness of index numbers to a country (4 marks)

**QUESTION THREE (20 Marks)**

- a. Discuss two main sources of statistical data (4 marks)
- b. Explain briefly three components of time series data (6 marks)
- c. The following information relate to quarterly profit (sh. Million) earned by firms in Growth Enterprise Market Segment of the NSE

Year	Q1	Q2	Q3	Q4
2009	33	36	35	38
2010	42	40	42	47
2011	54	53	54	62
2012	70	67	70	77

**Required:**

- i. Represent the data in the table using a multiple bar diagram (4 marks)
- ii. Calculate the Centered four quarterly moving averages (6 marks)

**QUESTION FOUR (20 Marks)**

- a) State four properties of a normal distribution (4 marks)
- b) The mean weight of 500 male students at a certain college is 85 Kgs and the standard deviation is 8.5Kg. Assuming that the weights are normally distributed, find how many students weigh:
  - i. Between 60 and 88 Kgs. (4 marks)
  - ii. More than 90 Kgs. (4 marks)
- c) Two panelists assigned scores to 8 candidates who appeared for an interview for a position advertised in the organization. The results are tabulated below:

Contestant	1 <sup>st</sup> Panelist	2 <sup>nd</sup> Panelist
A	55	40
B	47	45
C	79	82
D	82	50
E	90	93
F	65	55
G	70	57
H	68	80

**Required:**

- i. Calculate the spearman's rank correlation coefficient for the data and interpret your answer. (4 marks)
  - ii. Whose panelist's scores show high variability? Support your answer using relevant computations (4 marks)
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