

CHUKA

UNIVERSITY



UNIVERSITY EXAMINATIONS

**EXAMINATION FOR THE AWARD OF DEGREE OF BACHELOR OF
COMMERCE, BACHELOR OF PROCUREMENT AND LOGISTICS
MANAGEMENT & BACHELOR OF AGRIBUSINESS MANAGEMENT**

BCOM 262: BUSINESS STATISTICS I**STREAMS: BCOM, BPLM & AGBM (Y2S1) (ODEL)****TIME: 2 HOURS****DAY/DATE: WEDNESDAY 07/08/2024****8.30 A.M. – 10.30 A.M.****INSTRUCTIONS**

- Answer Question ONE and Other TWO Questions
- Do not write on the question paper

QUESTION ONE (30 MARKS)

- a) Discuss the role of business statistics in management of commercial enterprises (5 marks)
- b) The production manager of XYZ ltd is concerned about the apparent fluctuations in efficiency and wants to determine how labour costs (in shillings) are related to volume of production (in units). The following data presents results of 6 most recent weeks

Week	Units produced	Labour cost
1	30	340
2	42	346
3	32	287
4	30	262
5	30	220
6	50	416

Required:

- a) Estimate the cost function using regression analysis (6 marks)
- b) Estimate the labour cost for week if 58 units were produced (2 marks)
- c) Calculate the coefficient of determination and comment on the results obtained (5 marks)
- c) The loaves of bread distributed to local stores by a certain bakery have an average

length of 260 mm and standard deviation of 40 mm. Assuming the length is normally distributed, what is the probability of the loaves being:

- i) Less than 240 mm (3 marks)
- ii) Between 185 and 280 mm (3 marks)
- iii) Longer than 270 mm (3 marks)
- iv) Less than 282 mm (3 marks)

QUESTION TWO (20 MARKS)

a) Distinguish between the following terms as applied in business statistics

- i) Population and sample (4 marks)
- ii) Statistic and parameter (4 marks)

b) The following information relates to expenditures by an average income family in Matopeni market during the years 2023 and 2024

	2023		2024	
Commodity	Price (sh)	Quantity	Price (sh)	Quantity
Maize (Kgs)	48	240	59	260
Rice (Kgs)	65	180	70	200
Sugar (Kgs)	52	60	65	50
Wheat (Kgs)	60	80	75	60

Required: Using 2023 as the base year calculate;

- i) Laspeyre's price index and interpret the results (4 marks)
- ii) Paasche's price index and interpret the results (4 marks)
- iii) Fishers ideal price index and interpret the results (4 marks)

QUESTION THREE (20 MARKS)

- a) Discuss the characteristics of a Gaussian distribution function (6 marks)
- b) The Workers' union of Links Ltd is concerned with disparity in salaries earned by different categories of employees in the Company. The salary distribution for its employees is as shown below

Salary sh. '000'	No. of employees
300-340	10
340-380	5
380-420	5
420-460	12
460-500	14
500-540	24
540-580	14

Required:

- a) Arithmetic mean of the company salaries (3 marks)
- b) Median of the company salaries (3 marks)
- c) Modal company salary level (3 marks)
- d) Standard deviation of the company salaries (3 marks)
- e) Coefficient of Variation of the company salaries (2 marks)

QUESTION FOUR (20 MARKS)

- a) Explain the four factors which may affect a time series data (8 marks)
- b) Explain the challenges a researcher may encounter in the construction of index numbers (6 marks)
- c) A company gives on job training to its sales staff which are followed by a test. It is considering whether to terminate the services of any sales person who does not do well in the test. The following data gives the test scores by nine officers during the last one year.

Test Scores	14	19	24	21	26	22	15	20	19
Sales (Ksh M)	31	36	48	37	50	45	33	41	39

Required:

Compute the Karl Pearson's correlation coefficient between test scores and sales made by the officers (6 marks)

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