

CHUKA



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CHUKA/EMBU

**EXAMINATION FOR THE AWARD OF DIPLOMA IN BUSINESS MANAGEMENT,
DIPLOMA IN PROCUREMENT AND LOGISTICS MANAGEMENT AND
DIPLOMA IN ACCOUNTANCY**

DIBM 0223: BUSINESS STATISTICS**STREAMS: DPLM Y2S2,DIAC/DIBM Y2S1****TIME: 2 HOURS****DAY/DATE: WEDNESDAY 18/12/2024****2.30 P.M – 4.30 P.M****INSTRUCTIONS:****Answer Question ONE and Other TWO Questions****Do not write on the question paper****QUESTION ONE (30 MARKS)**

- a) Discuss the various areas of business statistics in management of commercial enterprises
(5 marks)
- b) Distinguish between the following terms as applied in business statistics;
- i) Sample and population (3 marks)
 - ii) Primary and secondary data (3 marks)
 - iii) Parameter and statistic (3 marks)
- c) The Management of Nilam Ltd believes that the relationship between the total cost of production and the number of units produced is linear in nature and the following data was gathered on the production for the last 8 months to aid in future planning:

Units produced “000”	Total cost of production “000”
67	60
63	64
82	62
64	72
90	85
60	65
51	63

55	52
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Required:

- i) Formulate a regression function using the ordinary least squares method. (6 marks)
- ii) Forecast the cost incurred in August 2024 if 61,000 units were produced (2 marks)
- iii) Compute the Pearson’s correlation coefficient between the number of units produced and the cost of production, and comment on the nature of the relationship (5 marks)
- iv) Determine the coefficient of determination (r^2) and comment on the fitness of the regression model obtained above in (i) above (3 marks)

QUESTION TWO (20 MARKS)

- a) Business statistics aid in formulation of viable decisions in a business but suffers some limitations on implementation. Discuss such limitations (8 marks)
- b) The following information relates to expenditures on vegetables by an average income family in Matopeni market during the years 2023 and 2024

Commodity	2023		2024	
	Price (sh)	Quantity	Price (sh)	Quantity
Sukuma wiki (Kgs)	48	240	59	260
Spinach (Kgs)	65	180	70	200
Cabbage (Kgs)	52	60	65	50
Lettuce (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) Describe the characteristics of a normal probability distribution (5 marks)
- b) Discuss the advantages of sample survey over census method in data collection and analyses (8 marks)
- c) A group of eight students were tested in “Quantitative analysis (QA)” and “Auditing” examinations. The % marks scored were as follows:

Student	A	B	C	D	E	F	G	H
Quantitative Analysis	76	43	49	84	69	69	53	36

Auditing	82	57	75	86	68	92	43	53
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Required: Compute the Spearman's rank correlation coefficient and interpret the results obtained (7 marks)

QUESTION FOUR (20 MARKS)

- a) Kazurini Farm practice large scale maize farming whereby the output of an acre of land is assumed to be normally distributed with an average of 52 bags of maize and a standard deviation of 3.2 bags.

Required: Determine the probability that a randomly harvested acre of land would have an output that is:

- i) Greater than 60 bags (3 marks)
 - ii) Less than 45 bags (3 marks)
 - iii) Lies between 50 and 60 bags (4 marks)
- b) The amount of money spent on purchases by the first 172 customers at a large department store is summarized in the following frequency distribution table:

Amount spend in sh. "000"	Number of customers
230-260	12
260-290	18
290-320	22
320-350	52
350-380	35
380-410	15
410-440	12
440-470	6

Required: Compute the following statistical measures;

- i) The mean amount spent by the customers (3 marks)
 - ii) The median amount spent by the customers (3 marks)
 - iii) The standard deviation of the amount spent by the customers (4 marks)
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