

CHUKA



UNIVERSITY

UNIVERSITY EXAMINATIONS

SECOND YEAR EXAMINATION FOR THE AWARD OF DEGREE OF BACHELOR OF COMMERCE

BCOM 262: BUSINESS STATISTICS 1

STREAMS: Y2S1

TIME: 2 HOURS

DAY/DATE : TUESDAY 28 /09/ 2021

11.30 AM – 1.30 PM

INSTRUCTIONS TO CANDIDATES:

- Answer Question One and any other Two Questions.
- DO NOT WRITE ANYTHING on the question paper

QUESTION ONE (30 MARKS)

- (a) Discuss the functions of statistics in management. [6 Marks]
- (b) Explain the following statistical concepts
- (i) A sample and a population [4 Marks]
- (ii) A quantitative and a qualitative variable [4 Marks]
- (c) The prevailing interest rate is believed to predict loan applications in the financial sector. A manager at EQTY bank in charge of operations has gathered the following historical data on number of loan applications per year and monthly interest rate charged on the loans over a span of 12 years.

No of Applicants (Y)	15	20	14	16	25	20	20	23	14	22	18	18
Rate (%) (X)	0.9	1.9	1.1	1.4	2.3	1.2	1.2	2.2	0.7	1.3	1.5	1.7

Required:

- (i) Fit the regression equation on the data using least squares method. [6 Marks]
- (ii) Hence forecast the number of applications if the monthly interest rate is 2.5%. [2 Marks]
- (d) The following table gives the distribution of companies according to size of capital.

Capital (Ksh.Million)	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Number of companies	4	8	18	30	15	10	8	7

Required:

- i. Calculate the average size of capital [4 Marks]
- ii. Calculate the Mode [4 Marks]

QUESTION TWO (20 MARKS)

- a. Explain the following data collection methods
- i. Direct observation [4 Marks]
- ii. Questionnaires [4 Marks]
- b. Consider the comparative data on household commodity prices in 2011 and 2012.

Commodity	2011		2012	
	Price	Quantity	Price	Quantity
Food	2	8	4	6
Fuel	5	10	6	5
Clothing	4	14	5	10
Transport	2	19	2	13

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

- (i) Laspeyre's price index [4 Marks]
- (ii) Paasche's quantity index [4 Marks]
- c. Explain the usefulness of index numbers to an economy [4 Marks]

QUESTION THREE (20 MARKS)

- a. What is meant by consumer price index? [2 Marks]
- b. Explain briefly the components of time series data. [8 Marks]
- c. The following information relates to quarterly earnings (sh.Million) reported by manufacturing companies in Kenya.

Year	Q1	Q2	Q3	Q4
2018	5.8	5.1	7.0	7.5
2019	6.8	6.2	7.8	8.4
2020	7.0	6.6	8.5	8.8

Required:

- (i) Trend values using three quarterly moving averages [6 Marks]
- (ii) Average seasonal index for each quarter assuming a multiplicative model. [4 Marks]

QUESTION FOUR (20 MARKS]

- (a) State four properties of a normal distribution [4 Marks]
- (b) A shop owner stocks groceries whose prices are normally distributed with a mean of Sh.200 and a variance of sh.20736 Kairuti who had visitors on a certain weekend was on window shopping to compare prices and entered in this shop. If she had sh.200,000 to spend on groceries:
- (i) How much did she spent on groceries whose prices are more than sh.500? [3 Marks]
- (ii) How much did she spent on groceries whose prices are between sh.180 and sh.500? [3 Marks]
- (c) The following table shows distribution of monthly wages (ksh.000) of 50 employees in each company A and B.

Income (Ksh.000)	10-14	15-19	20-24	25-29	30-34	35-39	40-44
Co.A Number of employees	3	5	15	12	6	6	2
Co.B Number of employees	12	5	6	7	10	10	4

Required:

- (i) For each company, calculate the standard deviation [6 Marks]
- (ii) Which company shows greater variability in the distribution of wages? Explain using relevant calculations. [4 Marks]
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