

CHUKA



UNIVERSITY

UNIVERSITY EXAMINATIONS

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

BCOM 262: BUSINESS STATISTICS I

STREAMS: BCOM (Y2S1)

TIME: 2 HOURS

DAY/DATE: FRIDAY 26/03/2021

11.30 A.M. – 1.30 P.M.

INSTRUCTIONS: Answer question ONE and any other TWO questions

QUESTION ONE (30 MARKS)

- (a) Highlight four importance of study of statistics [6 marks]
- (b) Explain the following statistical concepts
- (i) Descriptive and inferential statistics [4 marks]
- (ii) A parameter and a statistic [4 marks]
- (c) The price and demand of a soft drink has been documented as follows:

Price (Ksh.000)	2	3	5	4	2	6	1	3
No. of bottles	12	11	4	6	11	4	4	10

- (i) Calculate the Pearson's correlation coefficient and interpret your result [4 marks]
- (ii) Determine the regression equation and use it to find the forecast number of bottles at a price of ksh. 9,000 [4 marks]
- (d) The following table gives the distribution of companies according to size of capital

Capital (Ksh. Billions)	0-5	5-10	10-15	15-20	20-25	25-30
Number of companies	20	7	2	9	10	5

Required:

- (i) Calculate the mean size of the companies [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) Laspeyres price index [4 marks]
 - (ii) Paasche’s quantity index [4 marks]
- (c) In order to investigate the relationship between employment terms as the time a loan was arranged and whether or not the loan is now in default, a loan manager randomly chooses 100 loan accounts, with the results indicated in the table below

Loan repayment status	Employment terms	
	Temporary	Permanent
In Default	60	8
Not in Default	10	22

Required: Test whether employment terms and loan repayment are dependent at 5% level of significance. [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 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) Centered four quarterly moving average [6 marks]
- (ii) Average seasonal index for each quarter using multiplicative model [4 marks]

QUESTION FOUR (20 MARKS)

- (a) State four properties of a normal distribution [4 marks]
- (b) For a large population of normally distributed account balances, the mean balance is kshs. 15000 with standard deviation of Kshs 3500. What is the probability that a randomly sampled account has a balance that:
- (i) Exceeds kshs. 16000 [4 marks]
- (ii) Lies between Kshs. 13000 and Kshs. 20000 [4 marks]
- (c) The following table shows the pattern of overtime hours per week done by 101 employees of a company

Overtime hours	10-14	15-19	20-24	25-29	30-34	35-39
Number of employees	2	6	14	21	33	39

Required:

BCOM 262

- (i) Calculate the standard deviation [5 marks]
- (ii) Calculate the 70th percentile and interpret your result [3 marks]
-