



Quality Education for the Real World

GRE TSA UNIVERSITY - THIKA

UNIVERSITY EXAMINATIONS MAY – AUGUST 2023 SEMESTER

BACHELOR OF COMMERCE

COURSE CODE: BCBA 202

COURSE TITLE: BUSINESS STATISTICS

DATE: 31 JULY 2023

TIME: 8.00 AM – 11.00 AM

INSTRUCTIONS TO CANDIDATES

1. SECTION A IS **COMPULSORY**.
2. SECTION B: ANSWER ANY OTHER **THREE** QUESTIONS.
3. **DO NOT** WRITE ANYTHING ON THIS QUESTION PAPER AS IT WILL BE AN EXAM IRREGULARITY.
4. ALL ROUGH WORK SHOULD BE AT THE BACK OF YOUR ANSWER BOOKLET AND CROSSED OUT.

CAUTION: *All exam rooms are under CCTV surveillance during the examination period.*

SECTION A: COMPULSORY

Question One

- a) The following table summarizes information related to purchase of stationary items by households for two different periods. Use this information to answer the questions that follow.

Stationery	Price (sh.)		Quantity (kg)	
	2010	2015	2010	2015
Milk	30	40	100	130
Bread	45	48	180	210
Butter	65	84	65	95
Cake	95	110	130	160

Compute:

- i. Simple aggregate index [3 Marks]
 - ii. Paasches Price and Quantity Indices [4 Marks]
 - iii. Laspeyres Price and quantity indices [4 Marks]
 - iv. Fisher's Price and Quantity Indices [4 Marks]
- b) The following data represents scores obtained by students in a statistics exam
- | | | | | | | | | | | | |
|----|----|----|----|----|----|----|----|----|----|----|----|
| 15 | 45 | 20 | 60 | 30 | 35 | 40 | 55 | 70 | 20 | 40 | 25 |
| 60 | 45 | 34 | 60 | 30 | 25 | 18 | 35 | 48 | 45 | 56 | 59 |
| 25 | 38 | 39 | 45 | 56 | 20 | 60 | 55 | 30 | 41 | 25 | 56 |
| 25 | 45 | 25 | 35 | 60 | 30 | 48 | 27 | 50 | 60 | 15 | 25 |
| 64 | 54 | 73 | 12 | 77 | 14 | 71 | | | | | |
- i. Construct a grouped frequency distribution related to this data [5 Marks]
 - ii. Construct a histogram and a frequency curve for the data [5 Marks]
 - iii. Construct a cumulative frequency curve for the data [5 Marks]
- c) Discuss the functions of statistics as a subject learnt during the semester. [5 Marks]

SECTION B: ANSWER ANY THREE QUESTIONS

QUESTION TWO

- a) The following data represents the ages and number of patients affected by a new disease. Doctors are trying to establish whether the age of an individual is related to their likelihood of getting infected.

Age of Patients	35	45	23	50	90	75	55	28	88	65	78	24
Number of infected patients	45	55	50	75	130	110	80	37	90	85	70	26

- i. Compute Karl Pearson Correlation coefficient and the coefficient of determination and interpret these values. [7 Marks]
 - ii. Find the least squares regression line for the above data. [6 Marks]
 - iii. Determine the number of infected patients aged 57 years [2 Marks]
- b) Discuss the stages in a statistical investigation. [5 Marks]

QUESTION THREE

- a) Given below is the number of families in a locality according to their monthly expenditure. Use the data to answer questions that follow:

Monthly expenditure	No. of families
140 - 150	17
150 - 160	29
160 - 170	42
170 - 180	72
180 - 190	84
190 - 200	107
200 - 210	49
210 - 220	34
220 - 230	31
230 - 240	16
240 - 250	12

- i. Calculate the mean, median and mode for the data [6 Marks]
 - ii. Compute mean absolute deviation, standard deviation and variance [6 Marks]
 - iii. Compute the quartile deviation for the data [3 Marks]
- b) Discuss the advantages of arithmetic mean [5 Marks]

QUESTION FOUR

- a) The following data was recorded for profits realised by a company over a period of one year:

Month	Profits (000s)
Jan	5490
Feb	2800
March	2905
April	4950
May	5320
June	5490
July	3280
August	3420
September	2610
October	2970
November	3780
December	3150

- i. Calculate a three point moving average for the data [5 Marks]
 - ii. Represent the above data on a graph and determine the trend for the data [5 Marks]
 - iii. Compute the Mean Squared error for the 3 point moving average [5 Marks]
- b) Discuss the uses of correlation and regression analysis [5 Marks]

QUESTION FIVE

- a) A study was conducted to investigate the relationship between age and cholesterol levels. The following table represents the finding:

Age	97	68	75	66	58	42	37	25	19
Cholesterol Levels	12	10	13	9	10	6	5	4	5

Required:

- i. Compute the covariance between the two variables **[6 Marks]**
 - ii. Compute the Spearman's Rank Correlation Coefficient and interpret **[6 Marks]**
- b) Discuss the methods of collecting primary data and their advantages. **[8 Marks]**