



PAN AFRICA CHRISTIAN UNIVERSITY

BACHELORS OF COMMERCE

SEPTEMBER-DECEMBER 2024

DEPARTMENT:

COURSE CODE: BCM 204

COURSE TITLE: BUSINESS STATISTICS II

EXAM DATE:

TIME:

INSTRUCTIONS

- Read all questions carefully before attempting.
- Question **One** is **compulsory** i.e Section **A** is **compulsory**
- Answer any **THREE** Questions in Section **B**
- Write your **student number** on the answer booklet provided.

QUESTION ONE- COMPULSORY**(10 MARKS)**

- a. Explain the following terms citing relevant examples:
- i. Population (2 Mark)
 - ii. Statistics (2 Marks)
- b. A group of 8 mathematics students are tested in statistics and calculus. Their rankings in the tests were: -

Student	A	B	C	D	E	F	G	H
Statistics	2	7	6	1	4	3	5	8
Calculus	3	6	4	2	5	1	8	7

Find the Spearman's correlation between Statistics and calculus. (6 marks)

QUESTION TWO**(10 MARKS)**

The following data was collected for the sales of potatoes for a period of 7 years

Year	1	2	3	4	5	6	7
Sales of wedges in thousands	14	17	15	23	18	22	27

Using the general form the equation of any straight line on a graph is $y = \alpha + \beta x$,

- i. find the values of α and β (5 marks)
- ii. Find the coefficient of determination (5marks)

QUESTION THREE**(10 MARKS)**

- a. Differentiate between the following using suitable examples:
- i. ONE tailed and TWO tailed tests (2marks)
 - ii. Null and Alternative Hypothesis (2marks)
- b. The mean lifetime of a sample of 100 light tubes produced by a company is found to be 1570 hours with standard deviation of 80 hours. Test the hypothesis that the mean lifetime of the tubes produced by the company is 1600 hours at 95% confidence level. (6 marks)

QUESTION FOUR**(10 Marks)**

- a. A sales clerk in a departmental store claim that 60% of the shoppers entering the store leave without make a purchase. A random sample of 50 shoppers showed that 35 of them left without buying anything. Are the sample results consistent with the claim of the sales clerk? Use a level of significance of 0.05. (5 marks)
- b. Two computers A and B are to be marketed. A salesman who is assigned the job of finding customers for them has 60% and 40% chances, respectively of succeeding in case of computer A and B. The computers can be sold independently. Determine the probability that computer A has been sold. (5 marks)

QUESTION FIVE**(10 Marks)**

- a. Describe the chi square test (3 marks)
- b. State the basic conditions must be met in order for chi-square analysis to be applied (7 marks)

QUESTION SIX**(10 Marks)**

- a. Discuss **four** characteristics of moving averages (4 Marks)
- b. State **six** limitations of moving averages. (6 Marks)

FORMULAE

$$\sum (x - \bar{x})^2 = \sum x_i^2 - \frac{(\sum x)^2}{n}$$

$$\Sigma (y-\bar{y})^2 = \Sigma y_i^2 - \Sigma (y)^2/n$$

$$\Sigma (x-\bar{x}) (y-\bar{y}) = \Sigma x_i y_i - \Sigma (x) \Sigma (y)/n$$

$$y^* = a + bx$$

1.

$$b = \frac{n \Sigma xy - (\Sigma x)(\Sigma y)}{n(\Sigma x^2) - (\Sigma x)^2}$$

$$a = \frac{\Sigma y - b \Sigma x}{n}$$

$$r = \frac{n(\Sigma xy) - (\Sigma x)(\Sigma y)}{\sqrt{[n\Sigma x^2 - (\Sigma x)^2][n\Sigma y^2 - (\Sigma y)^2]}}$$