



PAN AFRICA CHRISTIAN UNIVERSITY

END OF SEMESTER EXAMINATION FOR THE DEGREE OF

JANUARY- APRIL 2025

CAMPUS: ROYSAMBU-

DEPARTMENT: BUSINESS

COURSE CODE: BCM 108

COURSE TITLE: BUSINESS STATISTICS

EXAM DATE:

TIME:

INSTRUCTIONS

- This examination script consists of **six (6)** questions.
- Answer question **ONE** and ANY other **four** Questions.
- Read all questions carefully before attempting.
- Write your **student number** on the answer booklet provided.

Question One

(Compulsory= 10 marks)

a) Distinguish between:

i. Discrete and continuous data.

(2 marks)

- ii. The mean deviation and the standard deviation. (2 marks)
- iii. The coefficient of variation and the coefficient of skewness. (2 marks)

b) Discuss:

- i. Two the advantages of mode (2 marks)
- ii. Two disadvantages of the median as measures of central tendency. (2 marks)

Question Two

The following set of data represents the distribution of annual salaries of a random sample of 100 managers in a large multinational company:

Salary Range (£000)	Managers
20 but under 25	4
25 but under 30	8
30 but under 35	24
35 but under 40	40
40 but under 45	20
45 but under 50	4

Calculate

- i. The mean (3 marks)
- ii. The median and (3 marks)
- iii. The standard deviation for this distribution and comment on your results. (4 marks)

Question Three

- a) Define a simple random sample. (2 marks)
- b) Explain how a simple random sample may be selected in practice. (3 marks)
- c) Distinguish between non-response bias and sampling error. (5marks)

Question Four

A company buys four types of raw materials. The prices (in £) and annual quantities used in the years 2019 and 2020 are given below:

Materials	2019		2020	
	Price	Quantity	Price	Quantity
A	50	90,000	90	80,000
B	60	10,000	50	20,000

C	60	1,000	50	2,000
D	50	25,000	60	20,000

- a) Calculate a (weighted) Laspeyres price index for 2020, using 2019 as the base year.
(5 marks)
- b) Calculate a (weighted) Paasche price index for 2020, using 2019 as the base year.
(5 marks)

Question Five

The table below shows grouped distribution of the overdraft sizes of 400 bank customers.

Size in Kshs.	Number of customers
Less than 100	82
100 but less than 200	122
200 but less than 300	86
300 but less than 400	54
400 but less than 500	40
500 but less than 600	16

- a. Using the above table calculate the following:
- Quartile 1 (Q_1) (2 marks)
 - Quartile 3 (Q_3) (2 marks)
 - Fourth Decile (D_4) (2 marks)
 - Ninty fifth percentile (P_{95}) (2 marks)
 - Quartile deviation (2 marks)

Question Six

The distances travelled to work (in km) by 30 employees of a company are as follows:

9	2	15	5	8	10
10	20	5	15	9	8
10	15	5	10	8	1
10	10	9	12	7	10

11 10 20 25 10 7

- a. Calculate the standard deviation. (4 marks)
- b. A wallpaper manufacturer has developed a new range of wallpaper designs and has employed you to obtain consumers' opinions of the new patterns before deciding which ones to distribute for sale. Explain how you would select a representative sample of consumers for the survey, bearing in mind that the funds available to cover the market research costs are limited. (5 marks)