PAN AFRICA CHRISTIAN PAC UNIVERSITY

**DLM 102 INTRODUCTION TO QUANTITATIVE METHODS**

**SEPTEMBER END TERM EXAM**

***DATE: DECEMBER 14TH 2018***

**Instructions**

i) **This exam paper contains TWO sections. Answer ALL questions in Section A and any ONE question in section B.**
ii) **Read each question carefully before attempting.**
iii) **Round ALL your answers where relevant to one Decimal Place.**
iv) **Show ALL your workings on the answer booklet.**

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**SECTION A (ANSWER ALL QUESTIONS IN THIS SECTION)**

1. a) Define the term Quantitative Method (2 marks)
   b) Differentiate between a Discrete Variable and a Continuous Variable (2 marks)
   c) State any three measures of dispersion used in Quantitative Methods? (3 marks)
   d) Outline any three ways statistics can be used for business decision making? (3 marks)

2. The following are monthly units of jeans produced by employees of an Export Processing Company.

| Employee name | Martha | Jacinta | Colleta | Arnold | Stalone | Grace |
|---|---|---|---|---|---|---|
| Quantity | 130 | 146 | 143 | 142 | 143 | 160 |

Required:
Determine:
a) The mean (2 marks)
b) The median (2 marks)
c) The mode (2 marks)
d) The range (2 marks)
e) The skewness (2 marks)

3. The following data relates to GPA scores of students at PAC University

| GPA scores | 2.78 | 3.00 | 3.30 | 3.57 | 3.75 | 3.80 |
|---|---|---|---|---|---|---|
| No. of students | 10 | 20 | 24 | 12 | 5 | 2 |

Required:
Calculate:
a) The Variance (8 marks)
b) The Standard Deviation (2 marks)

**SECTION B (ANSWER ONE QUESTION ONLY IN THIS SECTION)**

4. The following prices and quantities were obtained from a local supermarket for three commodities for the year 2015 and 2018:

| | 2015 | | 2018 | |
|---|---|---|---|---|
| | Price | Quantity | Price | Quantity |
| Sugar | 200 | 5 | 390 | 7 |
| Flour | 80 | 6 | 150 | 8 |
| Cooking oil | 250 | 4 | 365 | 6 |

Required:
Compute index numbers for year 2018 taking year 2015 as the base year using:
a) Laspeyre's Price Index (5 marks)
b) Paasche's Price Index (5 marks)

5. The following table provides data showing the test scores made by salesmen on an intelligence test and their monthly sales:

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Salesmen | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| Test score | 40 | 70 | 50 | 60 | 80 | 50 | 90 | 40 | 60 | 60 |
| Sales (KSh '000) | 2.5 | 6.0 | 4.0 | 5.0 | 4.0 | 2.5 | 5.5 | 3.0 | 4.5 | 3.0 |

Required:
a) Calculate the regression line of sales on test scores (8 Marks)
b) Estimate the probable weekly sales volume if a salesman makes a score of 100 (2 marks).

6. The following table records data for the Gross Domestic Product (GDP) of 50 African countries for the year 2017.

| | | | | |
|---|---|---|---|---|
| GDP($ billions) | 0.5-37.5 | 37.5-74.5 | 74.5-111.5 | 111.5-148.5 |
| No. of countries | 40 | 5 | 3 | 2 |

Required:
Calculate the arithmetic mean using:
a) The direct method (5 marks)
b) The shortcut method (5 marks)