



PAN AFRICA CHRISTIAN UNIVERSITY
DIPLOMA IN LEADERSHIP AND MANAGEMENT
END TERM EXAMINATION – ONLINE

DEPARTMENT: BUSINESS

COURSE CODE: DLM 102

COURSE TITLE: QUANTITATIVE TECHNIQUES

Time: 3 HOURS

Instructions

- Read all questions carefully before attempting.*
- Answer FOUR questions out of the SIX Provided*
- Question ONE is Compulsory*

Write your student number on the answer sheet provided

QUESTION ONE: COMPULSORY (10 Marks)

a) Define the following terms:

i. Disjoint sets (2 marks)

ii. Linear Equation (2 marks)

b) Solve for x in the following:

$$2(3x + 2) - 20 > 8(x - 3) \quad (3 \text{ marks})$$

c) Solve the double inequality

$$-3 < 4(x + 2) - 3 < 9 \quad (3 \text{ marks})$$

QUESTION TWO

a) Carmen is 12 years older than David. Five years ago, the sum of their ages was 28.

Required

Calculate how old they both are today. (3 marks)

b) Solve for x

$$4x^2 = 20x - 25 \quad (7 \text{ marks})$$

QUESTION THREE

a) Define a quadratic equation (2 marks)

b) Solve the equation (8 marks)

$$\frac{3}{2x + 1} + \frac{4}{5x - 1} = 2$$

QUESTION FOUR

a) Define the following terms

i. A matrix (2 marks)

ii. Rectangular matrix (2 marks)

iii. Zero matrix (2 marks)

iv. Diagonal matrix (2 marks)

b) State the two conditions necessary for a matrix to be said to be equal (2 marks)

QUESTION FIVE

a) Write the following pairs of simple inequality statements as compound statements

i. $x \leq 3$ and $x > -3$ (2 marks)

ii. $x > -1$ and $x < 2$ (2 marks)

b) Solve the following inequality

$$3x - 4 \geq 5 \quad (2 \text{ marks})$$

c) Solve for x

$$\text{Log}_{125} 5 = x \quad (4 \text{ marks})$$

QUESTION SIX

a) Solve for x

$$27^{3x+5} = 81^{4x+1} \quad (5 \text{ marks})$$

b) A group of students together bought a text book for their class that cost KES 9,600. However, 2 students failed to pay their share, so each student had to pay KES 400 more.

Required

Compute how many students were in the original group. (5 marks)