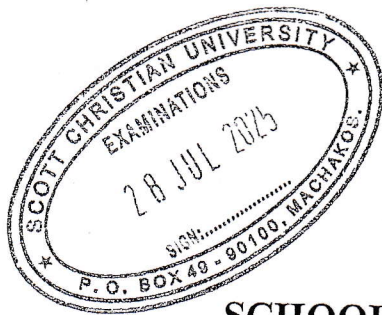




**Scott Christian
UNIVERSITY**
A Dynamic Centre of Academic Excellence

SCHOOL OF EDUCATION AND BUSINESS STUDIES

DIPLOMA IN INFORMATION TECHNOLOGY

CODE/NAME: DBA 023/DCT 025 : BUSINESS MATHEMATICS

May-August 2024/2025 End Semester Exam -Time: 2 Hours

Instructions: Answer Question ONE (Compulsory) and any other TWO questions.

QUESTION ONE (30 Marks)

- a) Find the 21st term and the sum of the first 30 terms of the A.P series: $15 + 8 - 1 - 8 - \dots$ (5 Marks)
- b) Let $U = \{x : x \in N, x \leq 10\}$ be the universal set, $A = \{1, 2, 3, 9\}$, $B = \{1, 3, 5, 6, 7, 8\}$ and $C = \{1, 3, 9\}$
- i) Illustrate this information in a Venn diagram. (3 Marks)
- ii) Find $A \cup (B \cap C)$. (3 Marks)
- iii) Find $A \oplus B$, the symmetric difference of A and B . (3 Marks)
- c) Solve the quadratic equation:
$$3x^2 - 17x + 24 = 0$$
 (5 Marks)
- d) Find the amount that will result if Ksh. 73,600 is invested for 7 years at 10 % compounded quarterly. (5 Marks)
- e) Given the matrices: $A = \begin{bmatrix} 1 & 3 \\ 2 & -1 \end{bmatrix}$, $B = \begin{bmatrix} 4 & -5 \\ 1 & 6 \end{bmatrix}$ and $C = \begin{bmatrix} 1 & 3 \\ 5 & 4 \end{bmatrix}$, show that:
$$A(B + C) = AB + AC.$$
 (6 Marks)

QUESTION TWO (15 Marks)

- a) Define the following terms:
- (i) Square matrix. (2 Marks)
- (ii) Unit Matrix (2 Marks)