



MACHAKOS UNIVERSITY

University Examinations for 2019/2020 Academic Year

SCHOOL OF BUSINESS AND ECONOMICS

DEPARTMENT OF ACCOUNTING, BANKING AND FINANCE

FIRST YEAR FIRST SEMESTER EXAMINATION FOR

DIPLOMA IN INFORMATION AND COMMUNICATION TECHNOLOGY

COMPUTATIONAL MATHEMATICS

DATE: 21/11/2019

TIME: 2.00-4.00 PM

INSTRUCTIONS:

Answer all the questions

1. Find the determinant of (10 marks)
$$\begin{vmatrix} 5 & 3 & 2 \\ 4 & 7 & 4 \\ 5 & 1 & 3 \end{vmatrix}$$
2. Find the product of (10 marks)
$$A = \begin{vmatrix} 1 & 3 & 4 \\ 2 & 3 & 2 \\ 6 & 9 & 2 \end{vmatrix} \quad B = \begin{vmatrix} 3 & 9 & 6 \\ 6 & 7 & 2 \\ 1 & 3 & 1 \end{vmatrix}$$
3. State and explain four types of matrices. (10 marks)
4. Use Echelons Row Reduction method to solve
$$4x - 2y + 3p = 20$$
$$4x - 2.5y + 2p = 16$$
$$1.5x + 5x - 2p = 2$$
5. State and explain various types of sets.
6. Using Cramers Rule to solve
$$2x - 3y + 4z + 4 = 0$$
$$x + 5y - 2z + 15 = 0$$
$$4x + 2y + 6z + 10 = 0$$

7. Given the following sets,

$$A = \{m, n, o, p\}$$

$$B = \{m, o, p, q\}$$

$$C = \{m, p, r\}$$

find

a) $A \cup B$

b) $A \cup B$

c) $B \cup C$

d) $A \cup B \cup C$

e) $B \cap C$