



Air University
(Mid-Term Examination: Fall 2024)

241503

Subject: Foundational Mathematics
Course Code: MA-114
Class: BS-CYS (Morning)
Semester: I
Section: A & B

Total Marks: 50
Date:
Time:
Duration: 2 Hours
FM Name:

HoD Signatures: _____

FM Signatures: _____

Note:

- All questions must be attempted.
- This examination carries 25% weight towards the final grade.
- Return the question paper with the answer sheet

Q. No. 1 (CLO 1)		12 Marks
a	If $Z_1 = 1 - 3i$, $Z_2 = 5 + i$, Prove that $ Z_1 Z_2 = Z_1 \cdot Z_2 $	6
b	If $Z_1 = 1 + 6i$ and $Z_2 = 1 + 2i$ Prove that $\overline{Z_1 + Z_2} = \overline{Z_1} + \overline{Z_2}$.	6
Q. No. 2 (CLO 2)		12 Marks
a	Solve the Quadratic equation by quadratic Formula $9x^2 - 6x + \frac{5}{9} = 0$	6
b	Write the expression in standard form without using calculator. $\frac{(1-i)(1+i)}{(1+\sqrt{2}i)}$	6
Q. No. 3 (CLO 3)		14 Marks
a	Solve the system of equations by finding Cramer's Rule form for matrix. $x - y + 4z = 4$ $2x + 2y - z = 2$ $3x - 2y + 3z = -3$	8
b	Solve the following partial fraction. $\frac{3}{(x-3)(x+3)}$	6
Q. No. 4 (CLO 4)		12 Marks
a	Find the common difference, 8 th term and 11 th term of the A.P. -4, -2, 0,	6
b	Find the value of x if A is a singular matrix $A = \begin{bmatrix} -x & 1 & 0 \\ 1 & -x & 1 \\ 0 & 1 & -x \end{bmatrix}$	6