

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

Make-up Examination-May-2025

COURSE CODE (CREDITS):20MS1MA111 (02)

MAX. MARKS: 25

COURSE NAME: Basics of Mathematics and Statistics

COURSE INSTRUCTORS: NKT

MAX. TIME: 1 Hour 30 Minutes

Note: Note: (a) All questions are compulsory.

(b) The candidate is allowed to make Suitable numeric assumptions wherever required for solving problems

Q.No	Question	Marks
Q1	Let $A = \begin{bmatrix} -1 & 0 & 2 \\ 3 & 1 & 4 \end{bmatrix}$, $B = \begin{bmatrix} 0 & -2 & 5 \\ 1 & -3 & 1 \end{bmatrix}$, $C = \begin{bmatrix} 1 & -5 & 2 \\ 6 & 0 & -4 \end{bmatrix}$ Compute $2A - 3B + 4C$	5
Q2	If $A = \begin{bmatrix} 1 & -1 \\ 2 & 3 \end{bmatrix}$, $B = \begin{bmatrix} 2 & 1 \\ 1 & 0 \end{bmatrix}$, show that $(A + B)^2 \neq A^2 + 2AB + B^2$	5
Q3	Evaluate $\begin{vmatrix} 1 & a & b+c \\ 1 & b & c+a \\ 1 & c & a+b \end{vmatrix}$	5
Q4	Solve the system of linear equations by Cramer's rule $3x + y + z = 2$, $2x - 4y + 3z = -1$, $4x + y - 3z = -11$	5
Q5	Evaluate $\left(\frac{1}{1-2i} + \frac{3}{1+i}\right)\left(\frac{3+4i}{2-4i}\right)$	5