

DEPARTMENT OF PHARMACEUTICAL SCIENCES & TECHNOLOGY

**BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(Internal Assessment I)**

CLASS: BPHARM		SEMESTER: I
BRANCH: PHARMACY		SESSION: MO/2025
SUBJECT: BP106RMT REMEDIAL MATHEMATICS		
TIME: 2.00 Hour		FULL MARK: 30

PART I

A. Objective type questions(Answer all questions)	(5 x02=10 marks)
1. If $A = \begin{bmatrix} 5 & 9 & 6 \\ 6 & 2 & 10 \end{bmatrix}$ and $B = \begin{bmatrix} 6 & 0 & 7 \\ 4 & -8 & -3 \end{bmatrix}$, find $A+B$ and $A-B$.	
2. If $A = \begin{bmatrix} 1 & -2 \\ 3 & -4 \end{bmatrix}$, then compute $A^2 - 5A + 3I$.	
3. Evaluate $\begin{vmatrix} 2 & 0 & 4 \\ 5 & -1 & 1 \\ 9 & 7 & 8 \end{vmatrix}$.	
4. If $A = [1 \quad -1 \quad 2]$ and $B = \begin{bmatrix} 2 \\ 3 \\ 1 \end{bmatrix}$, then find AB .	
5. If $A = \begin{bmatrix} 1 & -1 \\ 0 & 2 \end{bmatrix}$, $B = \begin{bmatrix} -1 & 0 \\ 2 & 1 \end{bmatrix}$ and $C = \begin{bmatrix} 0 & 1 \\ 1 & -1 \end{bmatrix}$, then find $A(B+C)$.	

PART II

B. Long Answers (Answer any one out of two)	(01x10=10 marks)
1. Solve the system $2x+y-z = 3$, $x+y+z = 1$, $x-2y-3z = 4$, by Cramer Rule.	
2. Verify the Caley Hamilton theorem for the matrix A and hence find its inverse :	
$A = \begin{bmatrix} 1 & -1 & 4 \\ 3 & 2 & -1 \\ 2 & 1 & -1 \end{bmatrix}$	

PART III

C. Short Answers(Answer any two out of three)	(02x05=10 marks)
1. Find the inverse of $A = \begin{bmatrix} 1 & 1 & 3 \\ 1 & 3 & -3 \\ -2 & -4 & -4 \end{bmatrix}$.	
2. Express the matrix A as the sum of a symmetric and a skew symmetric matrix where $A = \begin{bmatrix} 4 & 2 & -3 \\ 1 & 3 & -6 \\ -5 & 0 & -7 \end{bmatrix}$	
3. Find the characteristic equation of $A = \begin{bmatrix} 8 & -6 & 2 \\ -6 & 7 & -4 \\ 2 & -4 & 3 \end{bmatrix}$.	