

DEPARTMENT OF PHARMACEUTICAL SCIENCES & TECHNOLOGY
BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(End Semester Examination)

CLASS: BPHARMACY
BRANCH: PHARM SCI TECH

SEMESTER: I
SESSION: 2025-2026

SUBJECT: BP106RMT REMEDIAL MATHEMATICS

TIME: 1.30 Hour

FULL MARK: 35

A. Short Answers

(Answer five out of seven)

(05 x 05 = 25 marks)

1. Decompose the given rational expression into partial fraction $\frac{3x+5}{(x+2)(x-1)}$.

2. Evaluate $\lim_{x \rightarrow 2} \frac{x^3-9}{x-3}$.

3. Solve for x $\begin{vmatrix} 2 & 3 & 4 \\ -4 & x & -8 \\ 5 & 6 & 7 \end{vmatrix} = 0$.

4. Find the maximum and the minimum values of $f(x) = x^3/3 - 10x^2 + 300x$.

5. Differentiate with respect to x of the function: $y = x^4 e^x \log x$.

6. Evaluate $\int_1^2 (5x^4 + 2x + 2) dx$.

7. Find the equation of a line passing through the points(-2,0) and perpendicular to the line $4x-3y=2$.

B. Long Answers

(Answer one out of two)

(01 x 10 = 10 marks)

1. Find the inverse of $A = \begin{bmatrix} 1 & 0 & -1 \\ 1 & 2 & 1 \\ 2 & 2 & 3 \end{bmatrix}$.

2. Evaluate $\int \frac{1}{(x^2-a^2)} dx$.

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