

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

CLASS: BPHARMACY  
BRANCH: PHARM SCI TECH

SEMESTER: I  
SESSION: MO/2022

SUBJECT: BP106RMT REMEDIAL MATHEMATICS

TIME: 1.30 Hour

FULL MARK: 35

C. Short Answers

(Answer five out of seven)

(05 x 05 = 25 marks)

8. Find the limit  $\lim_{y \rightarrow 2} \frac{y^4 - 4}{y - 2}$ .

9. Resolve into partial fractions  $\frac{7x-5}{x^2-7x+12}$ .

10. Find the transpose of the matrix  $A = \begin{pmatrix} 12 & 8 & 4 \\ -3 & 0 & -7 \\ 1 & -3 & 5 \end{pmatrix}$ .

11. Find the derivative of the  $e^{-x} + a^x + \sin x$ .

12. Find the slope and intercept of the line  $3x - 4y + 10 = 0$ .

13. Find the order and degree of the differential equation  $\left(\frac{dy}{dx}\right)^4 + 3y \frac{d^2y}{dx^2} = 0$ .

14. Separate the variables of the differential equation  $(x^2 - y^2)dx + 2xydy$ .

D. Long Answers

(Answer one out of two)

(01 x 10 = 10 marks)

3. Find the determinant of the matrix  $A = \begin{pmatrix} -1 & 0 & 1 \\ 1 & 0 & -2 \\ 0 & 3 & 2 \end{pmatrix}$ .

4. Integrate  $\int \frac{8}{x} - \frac{5}{x^2} + \frac{6}{x^3} dx$ .

.....22/03/2023.....M