BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(END SEMESTER EXAMINATION)

CLASS: BPHARMACY **SEMESTER: I**
BRANCH: PHARM SCI TECH **SESSION: MO23**

SUBJECT: BP106RMT REMEDIAL MATHEMATICS

TIME: 1.30 Hour **FULL MARK: 35**

C. Short Answers
(*Answer five out of seven*) (05 x 05 = 25 marks)

1. Write the partial fractions of $\frac{3x+1}{(x-2)(x+2)}$.
2. Write the transpose of the matrix $\begin{pmatrix} 1 & 0 & -1 \\ 3 & 4 & 5 \\ 0 & -6 & -7 \end{pmatrix}$.
3. Find the derivative of $y = (3x + 2)^5$.
4. Find the integration of $\int \sin(ax + b)\, dx$.
5. Find the order and degree of the differential equation $x^2 \frac{dy}{dx} + 2xy - 6x^3 = 0$.
6. State Cayley-Hamilton theorem.
7. Find the product of two matrices $A = \begin{pmatrix} 3 & 2 \\ 7 & 5 \end{pmatrix}$ and $B = \begin{pmatrix} 6 & 7 \\ 8 & 9 \end{pmatrix}$.

D. Long Answers
(*Answer one out of two*) (01 x 10 = 10 marks)

3. Find the inverse of the matrix $A = \begin{pmatrix} 3 & -10 & -1 \\ -2 & 8 & 2 \\ 2 & -4 & -2 \end{pmatrix}$.
4. Find the integration of $\int x^3 \sin x \, dx$

:::::18/12/2023 M:::::