

THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY

[PHARMD 0423]

APRIL 2023

Sub. Code: 3806

PHARM. 'D' DEGREE EXAMINATION
FIRST YEAR (2009-2010 Regulation)
PAPER VI – REMEDIAL MATHEMATICS

Q.P. Code: 383806

Time : Three hours

Answer ALL questions

Maximum : 70 Marks

I. Elaborate on:

(4 × 10=40)

1. If $A = \begin{bmatrix} 2 & -3 \\ 1 & 5 \end{bmatrix}$ and $B = \begin{bmatrix} 3 & -1 & 2 \\ 1 & 0 & 0 \end{bmatrix}$ then verify that $(AB)^T = B^T A^T$
2. Show that $x^2 - y^2 + x - 3y - 2 = 0$ represent a pair of straight lines and also find the angle between them
3. a) Integrate $\int_0^{\frac{\pi}{2}} \sin^2 x \, dx$
b) Evaluate $\int \frac{\cos^2 x}{1 - \sin x} \, dx$
4. Solve: $(D^2 + 14D + 49)y = e^{-7x} + 4$.

II. Write notes on:

(6 × 5 = 30)

1. Find the value of the determinant $A = \begin{bmatrix} 1 & 2 & 3 \\ 2 & 4 & 6 \\ 3 & 6 & 9 \end{bmatrix}$
2. Prove $\cos^4 A - \sin^4 A + 1 = 2\cos^2 A$.
3. Find the equation of the parabola whose focus is (3,0) and the directrix is $3x + 4y = 1$.
4. Evaluate $\int x^3 e^x \, dx$.
5. Differentiate $\frac{1 - \sin x}{1 + \sin x}$
6. Find the equation of circle with center (1,2) and passing through the point (4,1).
