PHARM. D DEGREE EXAMS
FIRST YEAR
PAPER VI – REMEDIAL MATHEMATICS

Q.P. Code : 383806

Time : 3 hours   **Maximum : 70 marks**

I. Elaborate on :   **(2x20=40)**

1. 1. If A = $\begin{vmatrix} 5 & 2 \\ 7 & 3 \end{vmatrix}$ and B = $\begin{vmatrix} 2 & -1 \\ -1 & 1 \end{vmatrix}$ then prove that $(AB)^T = B^T.A^T$.

2. If u = $\sin^{-1}\left[\dfrac{x+y}{\sqrt{x}+\sqrt{y}}\right]$. Using Euler's theorem, show that $x.\dfrac{\partial u}{\partial x} + y.\dfrac{\partial u}{\partial y} = \dfrac{1}{2}\tan u$.

II. Write notes on :   **(10x3=30)**

1. Find the determinant, A = $\begin{matrix} 2 & 5 & 1 \\ 1 & 4 & 1 \\ 1 & 1 & 2 \end{matrix}$

2. Show that the straight lines 2x + y – 9 = 0 and 2x + y – 10 = 0 are parallel?

3. Show that $\cos^4 A - \sin^4 A = 1 - 2\sin^2 A$.

4. Evaluate: (i) cos 45°cos60°- sin45°sin60°.

    (ii) cos48°cos12° - sin48°sin12°.

5. Find the derivative of $x^{\sin x}$ by using logarithmic differentiation?

6. Find dy/dx if $y = x^3 – 6x^2 + 7x + 6$.

7. Integrate: $x e^x dx$.

8. Solve dy/dx = 1 + x + y + xy.

9. Find the Laplace transform for e^{3t+5}.

10. Solve: $(D^2+7D+12) y = e^{2x}$.

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