

[LE 806]
APRIL 2014
Sub. Code: 3806

**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. If $A = \begin{vmatrix} 5 & 2 \\ 7 & 3 \end{vmatrix}$ and $B = \begin{vmatrix} 2 & -1 \\ -1 & 1 \end{vmatrix}$ then prove that $(AB)^T = B^T \cdot A^T$.
2. If $u = \sin^{-1} \left[\frac{x+y}{\sqrt{x} + \sqrt{y}} \right]$. Using Euler's theorem, show that $x \frac{\partial u}{\partial x} + y \frac{\partial u}{\partial y} = 1 - \tan u$.

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

1. Find the determinant, $A = \begin{vmatrix} 2 & 5 & 1 \\ 1 & 4 & 1 \\ 1 & 1 & 2 \end{vmatrix}$
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) $\cos 45^\circ \cos 60^\circ - \sin 45^\circ \sin 60^\circ$.
(ii) $\cos 48^\circ \cos 12^\circ - \sin 48^\circ \sin 12^\circ$.
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: $(D^2 + 7D + 12) y = e^{2x}$.
