

[LO 806]

MAY 2019

Sub. Code: 3806

PHARM. D DEGREE EXAMINATION
(2009-2010 Regulation)
FIRST YEAR
PAPER VI – REMEDIAL MATHEMATICS
Q.P. Code : 383806

Time : Three hours**Maximum : 70 Marks****I. Elaborate on:****(4 x 10 = 40)**

1. Find A^{-1} , if $A = \begin{bmatrix} 1 & 1 & 1 \\ 1 & 1 & -1 \\ 1 & -1 & 0 \end{bmatrix}$
2. If $\cos \alpha = \frac{12}{13}$ and $\cos \beta = \frac{24}{7}$ where α lies in the second quadrant and β lies in the fourth quadrant. Find the values of: (i) $\cos(\alpha + \beta)$ (ii) $\sin(\alpha + \beta)$
(iii) (i) $\tan(\alpha + \beta)$.
3. Let $P[at^2, 2at]$, $Q\left[\frac{a}{t^2}, \frac{-2a}{t}\right]$ and $S[a, 0]$ be any three points, show that $\left[\frac{1}{SP} + \frac{1}{SQ}\right]$ is same all values of t.
4. Integrate $\int \frac{dx}{x^2 + 5x + 6}$.

II. Write notes on:**(6 x 5 = 30)**

1. If $A = \begin{bmatrix} 3 & 8 & 11 \\ 6 & -3 & 8 \end{bmatrix}$, $B = \begin{bmatrix} 1 & -6 & 15 \\ 3 & 8 & 17 \end{bmatrix}$ then find $7A + 5B$.
2. Prove that $\tan^2 \theta - \sin^2 \theta = \tan^2 \theta \sin^2 \theta$.
3. Prove that (1, 2) (1, 5) and (4, 2) are the vertices of a right angled isosceles triangle.
4. Evaluate $\int x^3 e^x dx$.
5. Differentiate: (i) $2x^2 + 3x^{-3} + 5e^x$ (ii) $3^x - \cot x + 2$.
6. Solve the differential equation $e^{x-y} dx + e^{y-x} dy = 0$.
