



13	Determine the Eigen values and Eigen vectors of the following matrices. $A = \begin{bmatrix} 1 & 1 & 3 \\ 1 & 5 & 1 \\ 3 & 1 & 1 \end{bmatrix}$ [10M]	CO2	L3
OR			
14	Reduce the following quadratic form to canonical form by orthogonal transformation $3x^2 + 5y^2 + 3z^2 - 2xy - 2yz + 2xz$ [10M]	CO2	L3
15	A Bacterial culture, growing exponentially, increases from 100 to 400 grams in 10 hours. How much was present after 3 hours. [10M]	CO3	L3
OR			
16	Find orthogonal trajectories of the family of circles $x^2 + y^2 + 2gx + c = 0$ [10M]	CO3	L4
17	Solve $(D^3 - 6D^2 + 11D - 6)y = e^{-2x} + e^{-3x}$ [10M]	CO4	L3
OR			
18	Solve $(D^2 + 2D - 3)y = x^2e^{-3x}$ [10M]	CO4	L3
19	By change the order of integration, evaluate $\int_0^3 \int_1^{\sqrt{4-y}} (x+y) dx dy$ [10M]	CO5	L6
OR			
20	Evaluate $\iint (x^2 + y^2) dx dy$ in the positive quadrant for which $x+y \leq 1$ [10M]	CO5	L6