



13	Reduce the quadratic form to canonical form $3x^2 - 3y^2 - 5z^2 - 2xy - 6yz - 6xz$ [10M]	2	L2
OR			
14	Verify Cayley – Hamilton theorem for $A = \begin{bmatrix} 2 & -1 & 1 \\ -1 & 2 & -1 \\ 1 & -1 & 2 \end{bmatrix}$ and find $A^{-1}$ and $A^4$ [10M]	2	L2
15	Solve $y(1 + xy)dx + x(1 - xy)dy = 0$ [10M]	3	L2
OR			
16	A Bacterial culture, growing exponentially, increases from 100 to 400 grams in 10 hours. How much was present after 3 hours [10M]	3	L2
17	Solve $(D^3 + 2D^2 + D)y = e^{2x} + x^2 + x + \sin 2x$ [10M]	4	L2
OR			
18	Solve by the method of variation of parameter $(D^2 - 2D)y = e^x \sin x$ [10M]	4	L2
19	Evaluate $\iint_R y \, dx \, dy$ when $R$ is the region bounded by $y$ -axis, the curve $y=x^2$ and the line $x+y=2$ in the first quadrant. [10M]	5	L2
OR			
20	Find the area of the region bounded by $y^2 = 4ax$ and $x^2 = 4ay$ [10M]	5	L2