

Q 8	Find the equation of the line which passes through the point (3,4) and the sum of the intercept on the axes is 14.	10	CO3
Q 9	Find the coordinates of the focus, axis of the parabola, the equation of the directrix and the length of the latus rectum of the parabola $y^2 = 12x$. OR Check whether the following vectors are coplanar or not: $\vec{u} = \hat{i} + 5\hat{j} - 2\hat{k}$, $\vec{v} = 3\hat{i} - \hat{j}$, and $\vec{w} = 5\hat{i} + 9\hat{j} - 4\hat{k}$.	10	CO3
SECTION-C (2Qx20M=40 Marks)			
Q 10	(i) Evaluate $\iint e^{2x+4y} dx dy$, over the triangle bounded by the lines $x = 0, y = 0$ and $x + y = 1$. (ii) Evaluate the definite integral $\int_0^\pi \log(1 + \cos x) dx$. OR (i) If $u = \frac{x^3 y^3}{x^3 + y^3}$, then show that $x \frac{\partial u}{\partial x} + y \frac{\partial u}{\partial y} = 3u$. Also verify Euler's theorem. (ii) Find the area between the parabolas $y^2 = 4ax$ and $x^2 = 4ay$.	20	CO2
Q 11	A dealer deals with only two items-tables and chairs. He has Rs 10,000 to invest and a space to store at most 60 pieces. A table costs him Rs 500 and a chair costs Rs 100. He can sell a table at Rs 550 and a chair at Rs 115. Assume that he can sell all the items that he buys. (i) Formulate this problem as an LPP so that he maximizes his profit. (ii) Draw a feasible region on a graph and clearly mention the corner points. (iii) How many tables and chairs should be produced to maximize the profit. Solve this problem graphically.	20	CO4