

Q1. Solve the following problems using graphical method:-

(i) $\max z = 18x + 16y$
 s.t. $15x + 25y \leq 375$
 $24x + 11y \leq 264$
 $x, y \geq 0$

(ii) $\min z = 6x_1 + 3x_2$
 s.t. $2x_1 + 4x_2 \geq 16$
 $4x_1 + 3x_2 \geq 24$
 $x_1, x_2 \geq 0$

(iii) $\max z = x + 2y$
 s.t. $5x + 6y \leq 600$
 $x + 2y \leq 160$
 $x \leq 80$
 $y \leq 60$
 $x, y \geq 0$

(iv) $\min z = 200x_1 + 300x_2$
 s.t. $2x_1 + 3x_2 \geq 1200$
 $x_1 + x_2 \leq 400$
 $2x_1 + 1.5x_2 \geq 900$
 $x_1, x_2 \geq 0$

(v) $\min z = 3x + 5y$
 $x + 3y \geq 3$
 $x + y \geq 2$
 $x, y \geq 0$

Q2. Reduce the following problems to standard form of LPP:

(i) $\max z = 18x + 16y$
 s.t. $15x + 25y \leq 375$
 $24x + 11y \leq 264$
 $x, y \geq 0$

(ii) $\min z = 6x_1 + 3x_2$
 s.t. $2x_1 + 4x_2 \geq 16$
 $4x_1 + 3x_2 \geq 24$
 $x_1, x_2 \geq 0$

(iii) $\max z = x + 2y$
 $5x + 6y \leq 600$
 $x + 2y \leq 160$
 $x \geq 0$ y unrestricted