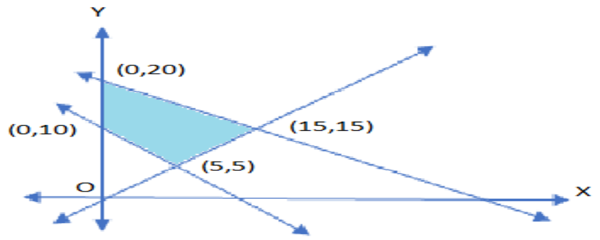
CHAPTER-12
LINEAR PROGRAMMING PROBLEMS
01 MARK TYPE QUESTIONS

Q. NO	**QUESTION**	**MARK**
1.	The optimum value of the objective function is attained at the points (A) given by the intersections of inequalities with the xx- axis only. (B) given by the intersections of inequalities with xx- axis and yy- axis only. (C) given by the corner points of the feasible region. (D) none of these.	1
2.	Objective function of an LPP is ….. (A) a constraints (B) a function which is to be optimized. (C) A relation between variables. (D) none of these.	1
3.	Which of the following is correct? (A) LPP always has a unique solution. (B) every LPP has a unique solution. (C) LPP admits two optimal solution. (D) if an LPP admits two optimal solution, then it has infinitely many optimal solution.	1
4.	The feasible region of an LPP is shown in figure. If Z = 3x + 9y, then the minimum value of Z occurs at  (A) (5,5) (B) (0,5) (C) (0,20) (D) (15,15)	1
5.	The corner points of the feasible region determined by the system of linear constraints are $(0,2),(3,0),(6,0),(6,8)(0,2),(3,0),(6,0),(6,8)$ and $(0,5)(0,5)$. The objective function is $F=4x+6y. F=4x+6y.$ The minimum value of FF occurs at (A) $(0,2)(0,2)$ only (B) $(3,0)(3,0)$ only (C) the mid-point of the line segment joining the points $(0,2)(0,2)$ and $(3,0)(3,0)$ (D) any point on the line segment joining the points $(0,2)(0,2)$ and $(3,0)(3,0)$	1
6.	An LPP is one that is concerned with finding ________________of a linear function called________________function of several variables (say xx and yy), subject to the conditions that the variables are ____________ and satisfy set of linear inequalities called linear constraints. (A) objective, optimal value, negative. (B) optimal value, objective, negative. (C) optimal value, objective, negative. (D) objective, optimal value, non – negative..	1

7.	Which of the following points is not in the feasible region of the constraints : $x+2y \leq 8\,, 3x+2y \leq 12\,, x \geq 0\,, y \geq 0 \quad x+2y \leq 8\,, 3x+2y \leq 12\,, x \geq 0\,, y \geq 0$ (A) (0 , -1) (B) (0 ,1) (C) (2 , 2) (D) (4 , 0)	1
8.	If the feasible region for an LPP is ___________, then the optimal value of the objective function $Z = ax + byZ = ax + by$ may or may not exist. (A) bounded. (B) unbounded. (C) in circle form. (D) in pentagon form.	1
9.	The solution set of the inequation $x + 2y > 3\, x + 2y > 3$ is ….. (A) half plane containing the origin. (B) open half plane not containing the origin. (C) first quadrant (D) none of these.	1
10.	Corner points of the feasible region determined by the system of linear constraints are $(0,3), (1,1)(0,3), (1,1)$ and $(3,0)(3,0)$. The objective function is $Z = px + qy$ $Z = px + qy$, where $p, q > 0 p, q > 0$. Condition on pp and qq so that the minimum of ZZ occurs at $(3,0)(3,0)$ and $(1,1)(1,1)$ is (A) $p = 2qp = 2q$ (B) $p = \frac{q}{2}p = \frac{q}{2}$ (C) $p = 3qp = 3q$ (D) $p = qp = q$	1
11.	The solution set of the inequality $3x + 4y < 4$ is (a) An open half-plane not containing the origin (b) An open half-plane containing the origin (c) The whole xy plane not containing the line $3x + 4y = 4$ (d) A closed half-plane containing the origin	1
12.	The corner points of the shaded unbounded feasible region of an LPP are $(0,4), (0.6,1.6)$ and $(3,0)$ as shown in the figure. The minimum value of the objective function $Z = 4x + 6y$ occurs at (a) $(0.6, 1.6)$ only (b) $(3,0)$ only (c) $(0.6, 1.6)$ and $(3,0)$ only (d) At every point of the line segment joining the points $(0.6, 1.6)$ and $(3,0)$	1
13.	The corner points of the feasible region determined by the system of linear constraints are $(0,3), (1,1)$ and $(3,0)$. Let $Z = px + qy$, where $p, q > 0$. Conditions on p and q so that the minimum of z occurs at $(3,0)$ and $(1,1)$. (a) $p = 3q$ (c) p = 3q (b) $2p = q$ (d) p = q	1
14.	Objective function of an LPP is (a) a constraint (b) a function to be optimized (c) a relation between variables (d) none of these	1
15.	Let X_1 and X_2 are optimal solutions of a LPP, then (a) $X = \lambda X_1 + (1-\lambda)X_2$, where $\lambda \in R$ is also an optimal solution.	1

	(b) $X = \lambda X_1 + (1-\lambda)X_2$, where $0 \le \lambda \le 1$ gives an optimal solution. (c) $X = \lambda X_1 + (1+\lambda)X_2$, where $0 \le \lambda \le 1$ gives an optimal solution. (d) None of these	
16.	For the LP problem Minimize z = 2x + 3y the coordinates of the corner points of the bounded feasible region are $A(3,3), B(20,3), C(20,10), D(18,12)$ and $E(12,12)$. The minimum value of Z is (a) 49 (b) 15 (c) 10 (d) 05	1
17.	For the LP problem maximize z = 2x + 3y. The coordinates of the corner points of the bounded feasible region are $A(3,3), B(20,3), C(20,10), D(18,12)$ and $E(12,12)$. The minimum value of z is (a) 72 (b) 80 (c) 82 (d) 70	1
18.	Solution of following LP problem Maximize z= $2x + 6y$ subject to $-x + y \le 1,\ 2x + y \le 2, x, y \ge 0$ (a) $\frac{4}{3}$ (b) $\frac{1}{3}$ (c) $\frac{26}{3}$ (d) No feasible region	1
19.	Solution of the following LP problem Minimize $z = -3x + 2y$ subject to $0 \le x \le 4, 1 \le y \le 6, x + y \le 5$ is (a) -10 (b) 0 (c) 2 (d) 10	1
20.	For the LP problem Minimize $z = 2x + 3y$ the coordinates of the corner points of the bounded feasible region are $A(3,3), B(20,3), C(20,10), D(18,12)$ and $E(12,12)$. The minimum value of z is_____ (a) 49 (b) 15 (c) 10 (d) 05	1
21.	Objective function of a linear programming problem is (A) constant (B) A relation between variables (C) function to be optimized (D) none	1
22.	The maximum value of the objective function Z =5x+10y subject to constraints x+2y ≤ 120 x+y≥60 x-2y ≥0 x,y≥ 0 is A) 300 (B)600 (C) 400 (D)none	1
23.	Observe the following : 3x-y≥ 3 and 4x -4y > 4 . Choose the correct option . Both	1

	(A) have solution for positive x and y (B) have no solution for positive x and y (C) have solution for all x (D) have solution for all y	
24.	The maximum value of Z =3x + 4y subject to constraints $x+y\leq 40$ $x+2y \leq 60$, x and y both positive is (A) 120 (B)140 (C)100 (D) none	1
25.	The minimum value of the objective function Z =x+2y subject to constraints $x+2y \geq 100$, $2x-y \leq 0$, $2x+y\leq 200$ $x,y\geq 0$ is A) 100 (B)600 (C) 400 (D)none	1
26.	The optimal value of the objective function is attained at the points (A) on x axis (B)on y axis (C)which are common points of the feasible region (D)none	1
27.	What do you mean by the optimal value? A) The minimum value only (B)The maximum value only (C) The maximum or minimum value (D)none	1
28.	The restrictions on the variables in linear programming problem are known as (A) optimal values (B)constraints (C) feasible region (D)none	1
29.	The maximum value of the objective function Z =x+2y subject to constraints $x+2y \geq 100$, $2x-y \leq 0$, $2x+y \leq 200$ $x, y\geq 0$ is (A) 100 (B)600 (C) 400 (D)none	1
30.	If the feasible region lies only on a line segment , the optimal value (A) lies on the line segment (B) lies on the line if produced to one side (C) lies on the line if produced to both sides (D)none	1

ANSWERS:

Q. NO	ANSWER	MARKS
1.	ANSWER: C	1
2.	ANSWER: B	1
3.	ANSWER: D	1
4.	ANSWER -A	1
5.	ANSWER: D	1
6.	ANSWER: C	1
7.	ANSWER -A	1
8.	ANSWER: B	1
9.	ANSWER: B	1
10.	ANSWER: B	1
11.	(b)	1
12.	(d)	1
13.	(b)	1
14.	(b)	1
15.	(b)	1
16.	(a)	1
17.	(a)	1
18.	(c)	1
19.	(a)	1
20.	(b)	1
21.	B	1
22.	B	1
23.	A	1
24.	B	1
25.	A	1
26.	C	1
27.	C	1
28.	B	1
29.	C	1
30.	A	1