



Class 12 Mathematics | Linear Programming

MCQ WORKSHEET • 15 questions • Choose one correct option • Suggested time: 25 minutes

1. In linear programming, the quantity to maximise or minimise is the:

- A. Feasible region
- B. Objective function
- C. Origin
- D. Constraint boundary

2. A feasible point must satisfy:

- A. All constraints
- B. Only the objective equation
- C. Any one constraint
- D. Only nonnegativity

3. Maximise $Z=2x+3y$ over $x,y\geq 0$, $x+y\leq 4$. The maximum is:

- A. 12
- B. 4
- C. 24
- D. 8

4. For $x,y\geq 0$ and $x+y\leq 5$, which point is infeasible?

- A. (0,5)
- B. (3,3)
- C. (2,2)
- D. (5,0)

5. Minimise $x+y$ subject to $x,y\geq 0$ and $x+y\geq 6$. The minimum is:

- A. No finite minimum
- B. 12
- C. 0
- D. 6

6. Maximise $3x+y$ on $0\leq x\leq 2$, $0\leq y\leq 3$. The maximum is:

- A. 5
- B. 3
- C. 6
- D. 9

7. The region $x\geq 0, y\geq 0$ is:

- A. Empty
- B. A single point
- C. Unbounded
- D. Bounded

8. Constraints $x+y\leq 2$ and $x+y\geq 5$ yield:

- A. A unique optimum always
- B. A bounded nonempty region
- C. No feasible solution
- D. All first-quadrant points

9. For bounded nonempty feasible regions, a linear objective attains an optimum at:

- A. At least one corner point
- B. Every interior point
- C. No boundary point
- D. Only the origin

10. Maximise $x+y$ for $x,y\geq 0$ and $x+y\leq 4$. Optimal points include:

- A. Every point on $x+y=4$ in the first quadrant
- B. Only (0,4)
- C. Only (0,0)
- D. Only (4,0)

11. A product uses 2 hours/unit and another uses 3 hours/unit; 18 hours are available. Constraint:

- A. $2x+3y\geq 18$
- B. $3x+2y\leq 18$
- C. $x+y\leq 18$
- D. $2x+3y\leq 18$

12. If profits are ₹40 per x-item and ₹50 per y-item, the objective is:

- A. Maximise $40x+50y$
- B. Maximise $50x+40y$
- C. Minimise $40x+50y$
- D. Maximise xy

13. The intersection of $x+y=6$ and $x+2y=8$ is:

- A. (4,2)
- B. (6,0)
- C. (2,4)
- D. (0,4)

14. For vertices (0,0), (4,0), (2,3), (0,4), maximum of $3x+2y$ is:

- A. 14
- B. 12
- C. 8
- D. 10

15. For $x,y\geq 0$ with no upper restrictions, maximising $x+y$ gives:

- A. Maximum 0
- B. Maximum 1
- C. A unique maximum
- D. No finite maximum

ANSWER KEY — check after completing all 15 questions

1.B 2.A 3.A 4.B 5.D 6.D 7.C 8.C 9.A 10.A 11.D 12.A 13.A 14.B 15.D

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