

SECTION – A (1 × 5 = 5)

- 1) A fire in a factory delaying production for some time is
(A) Long term trend (B) Cyclical trend (C) Seasonal trends (D) Irregular trends
- 2) If the objective function of a L.P.P. is $Z = 5x + 7y$ and the corner points of the bounded feasible region are (0,0), (7,0), (3,4) and (0,2), then the maximum value of Z occurs at
(A) (0,0) (B) (7,0) (C) (3,4) (D) (0,2)
- 3) In an L.P.P. if the objective function $Z = ax + by$ has same maximum value on two corner points of the feasible region, then the number of points at which maximum value of Z occurs is
(A) 0 (B) 2 (C) finite (D) Infinite
- 4) The maximum value of $Z = 30X + 10Y$, subject to the constraints $x + y \leq 30$, $2x + y \leq 40$, $x, y \geq 0$ is
(A) 50 (B) 30 (C) 25 (D) 60
- 5) For the given five values 15, 24, 18, 33, 42, the three years moving averages are
(A) 19, 22, 33 (B) 19, 25, 31 (C) 19, 30, 31 (D) 19, 25, 33

SECTION – B (2 × 2 = 4)

- 6) Obtain the three-year moving averages for the following series of observation.

Year	1995	1996	1997	1998	1999	2000	2001	2002
Annual Sales (in ₹ 000)	3.7	4.2	4.3	3.4	4.4	5.4	3.4	2.4

- 7) Find the Region represented by $x \geq 0$, $y \geq 0$ lies in what quadrant and represent in graph.

SECTION – C (3 × 2 = 6)

- 8) Obtain the Four-year moving averages for the following series of observations:

Year	1995	1996	1997	1998	1999	2000	2001	2002
Annual Sales (in ₹ 000)	3.6	4.3	4.3	3.4	4.4	5.4	3.4	2.4

- 9) Fit a straight-line trend by the method of least squares

Year	2004	2005	2006	2007	2008	2009	2010
Sales (in ₹ 000)	26	26	44	42	108	120	166

SECTION – D (1 × 5 = 5)

- 10) Maximise $Z = 300 X + 190 Y$

Subject to the Condition

$$X + Y \leq 24$$

$$2X + Y \leq 32$$

$$X, Y \geq 0$$