

B.B.A. Semester - 5 (NEP-2020) Examination

Oct/Nov - 2025

Operations Research for Business Decisions (Minor-5)

Time: 2:00 Hours

Marks:50

Instructions:

1. All questions are compulsory.
2. Figures to the right indicate marks.

Que.1 (A) What is Operations Research? (05)
 (B) What is advantage and drawback of O.R. (05)

OR

Que.1 (A) Explain any three model of O.R.
 (B) State and Explain characteristics of O.R.

Que.2 (A) Explain Mathematical formulation of Linear Programming Problem. (05)
 (B) Explain Graphic Method. (05)

OR

Que.2 Solve the following LPP by graphic method. (10)

$$\text{Minimum } Z = x_1 + x_2$$

Subject to constraints

$$5x_1 + 10x_2 \leq 50, \quad x_1 + x_2 \geq 1, \quad x_2 \leq 4, \quad x_1, x_2 \geq 0$$

Que.3 (A) Explain Simplex Method. (05)
 (B) Explain (i) Surplus variable (ii) Slack Variable (iii) Artificial variable. (05)

OR

Que.3 Solve the following LPP by Simplex Method. (10)

$$\text{Max } Z = 4x_1 + 5x_2$$

Subject to Constraints

$$3x_1 + 6x_2 \leq 2,100, \quad 6x_1 + 5x_2 \leq 2,100, \quad x_1, x_2 \geq 0$$

Que.4 (A) Explain degeneracy in transportation problem? (05)
 (B) Explain Modi Method for solving Transportation problem. (05)

OR

Que.4 Find optimum solution of given Transportation problem. (10)

Plant/warehouses	W_1	W_2	W_3	W_4	Supply
P_1	9	7	10	8	14
P_2	8	11	9	11	27
P_3	13	10	12	10	14
Demand	15	19	11	10	55/55

Que.5 (A) What is assignment problem? (05)
 (B) How a maximum assignment problem can be solved. (05)

OR

Que.5 Five lathers are to be allotted to five operators (one for each). The following table gives weekly output figures (in pieces): (10)

	Weekly Out Put (in laths)				
Operators	L_1	L_2	L_3	L_4	L_5
P	20	22	27	32	36
Q	19	23	29	34	40
R	23	28	35	39	34
S	21	24	31	37	42
T	24	28	31	36	41

Profit per piece is Rs. 25. Find the maximum profit per week.
