2022

BCA (Honours)

Paper Code : DSE-2

(CBCS)

Full Marks : 32 Time : Two Hours

The figures in the margin indicate full marks.
Candidates are required to give their answers in their own words as far as practicable.

E1 : [Operation Research]

Group - A

Answer any *six* questions : 2×6=12

1. (a) What is least cost method?

   (b) Write two characteristics of OR.

   (c) What is Big-M method?

   (d) Define unbalanced solution.

   (e) What is opportunity loss table?

   (f) Write down the application of duality.

   (g) Differentiate between linear programming and integer programming.

P.T.O.

Group - B

Answer any *two* questions : 10×2=20

2. (a) Make the graphical representation of the set of constraints in the following L.P.P. :

Maximize $z = 3x_1 + 2x_2$

Subject to $-2x_1 + x_2 \leq 1,$

$x_1 \leq 2,$

$x_1 + x_2 \leq 3$

$x_1, x_2 \geq 0.$

(b) Describe Critical Path Method (CPM) Scheduling Technique briefly. 5+5

3. (a) Obtain the dual of the following L.P.P.

Minimize $z = 15x_1 + 10x_2$

Subject to $3x_1 + 5x_2 \geq 5,$

$5x_1 + 2x_2 \geq 3,$

$x_1, x_2 \geq 0.$

(b) Solve the following L.P.P. by simplex method :

Maximize $z = 3x_1 + 2x_2$

Subject to $x_1 + x_2 \geq 1,$

$2x_1 + x_2 \leq 4,$

$5x_1 + 8x_2 \leq 15$

$x_1, x_2 \leq 0.$ 5+5

4. (a) Determine an initial basic feasible solution of the following Transportation problem using VAM :

	D1	D2	D3	D4	
O1	21	16	25	13	11
O2	17	18	14	23	13
O3	32	27	18	41	19
	6	10	12	15	

(b) Solve the following 2×2 game, the game being without saddle point, using mixed strategies. 5+5

		B	
		B1	B2
A	A1	6	−4
	A2	−1	2