

Mid Semester Examination-B.TECH

(Dept. of Production Engineering)

Sub-IM &OR Full marks -20



(Answer Question No 1 and any three Questions)

1. Answer the following in brief.

[1 × 5]

- a. What are the characteristics of the standard form of LPP?
- b. Define Non degenerate basic feasible solution.
- . What is an unbalanced transportation problem?
- d. How the degeneracy in transportation problem can be resolved?
- g. Write down the matrix form of Linear Programming Problem .
- 2. Solve the following LPP by graphical method

[5]

Minimize  $Z=20X_1+10X_2$ 

Subject to,  $X_1+2X_2 \le 40$ 

$$3X_1 + X_2 \ge 30$$

$$4X_1 + 3X_2 \ge 60$$

2. Use simplex method to solve the LPP

[5]

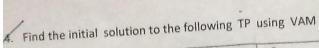
Min 
$$Z=X_2-3X_3+2X_5$$

Subject to 
$$3X_2-X_3+2X_5 \le 7$$

$$-2X_2+4X_3 \le 12$$

2 13/2 3/2 X

-4 +12



the mine.			D3	D4	Supply
	D1	D2	25	13	11
01	21	16	25	23	13
01	17	18	14	11	19
02	32	17	18	41	
O3 Demand	6	10	12	15	

Solve the following transportation problem starting with the initial solution obtained by NWCR. [5]

			I B	S	Supply
	P	Q	- R	13	11
^	21	16	25	72	13
3	17	18	14	23	19
3	37	17	18	41	13
Demand	6	10	12	15	

6. Use Penalty method to

Maximize 
$$Z = 3X_1 + 2X_2$$

S.T 
$$2X_1 + X_2 \le 2$$

$$3X_{1+}4X_2\geq 12$$

$$X_1, X_2 \ge 0$$

[5]

[5]