CAT2

MEE1024 Operation research A1+TA1

1

(i) Solve the following LPP using Graphical method.

$$\text{Max } Z = 3x_1 + 2x_2$$
$$\text{S.T.} \quad x_1 - x_2 \geq 1$$
$$x_1 + x_2 \geq 3$$
$$x_1, x_2 \geq 0$$

- 6 marks

(iii) A television company operates 2 assembly sections, section A and section B. Each section is used to assemble the components of 3 types of televisions: Colour, standard and Economy. The expected daily production on each section is as follows :

T.V Model	Section A	Section B
Colour	3	2
Standard	2	1
Economy	2	6

The daily running costs for 2 sections are Rs.4500 for section A and Rs.5000 for section B .It is given that the company must produce at least 24 colours, 18 standard and 40 Economy TV sets for which an order is pending. Formulate this as a L.P.P so as to minimize the total cost.

- 4 marks

2.

Use the simplex method to find the maximum value of

$$z = 3x_1 + 2x_2 + x_3$$

subject to the constraints

$$\begin{aligned} 4x_1 + x_2 + x_3 &= 30 \\ 2x_1 + 3x_2 + x_3 &\leq 60 \\ x_1 + 2x_2 + 3x_3 &\leq 40 \end{aligned}$$

where $x_1 \geq 0, x_2 \geq 0,$ and $x_3 \geq 0.$

- 10 marks

3.

(i) For the game with the following pay-off matrix, determine the optimum strategies and the value of the game.

	Player B				
Player A	9	3	1	8	0
	6	5	4	6	7
	2	4	3	3	8
	5	6	2	2	1

- 4 marks

(ii) Solve the following game whose payoff matrix is

	B	
A	7	4
	5	6

- 6 marks