

B.Com.(ISM) DEGREE EXAMINATION, ODD SEMESTER 2020
III Year V Semester
Operations Research

Max.marks :25

Answer any **FIVE** questions ($5 \times 5 = 25$) Marks

1. What are the essential characteristic features of Operation Research?
2. A firm manufactures headache pills in two sizes A and B. size A contains 2mgs of aspirin, 5mgs of bicarbonate and 1mg of codeine. Size B contains 1mg of aspirin, 8mgs of bicarbonate and 6mgs of codeine. It is found by user that it requires atleast 12mgs of aspirin, 74mgs of bicarbonate, 24mgs of codeine for providing immediate relief. It is required to determine the least number of pills a patient should take to get immediate relief. Formulate the problem as a standard LPP.

3. Solve the following LPP using graphical method

$$\text{Maximum } Z = 4x_1 + 4x_2$$

$$\text{Subject to } x_1 + 2x_2 \leq 10$$

$$6x_1 + 6x_2 \leq 36$$

$$x_1 \leq 4$$

$$x_1, x_2 \geq 0$$

4. Obtain an initial feasible solution to the following transportation problem by North west corner method

	D	E	F	G	Available
A	11	13	17	14	250
B	16	18	14	10	300
C	21	24	13	10	400
Required	200	225	275	250	

5. Find the optimum solution for the following Assignment problem

Job/Machines	A	B	C	D
I	42	35	28	21
II	30	25	20	15
III	30	25	20	15
IV	24	20	16	12

6. Construct the network diagram and find critical path

Activity	1-2	2-3	3-6	2-4	1-5	5-6	4-6	5-7	7-8	6-8
Duration	6	4	5	8	4	7	11	9	12	3

7. Solve the game by graphical method

		Player B	
		B_1	B_2
Player A	A_1	$\begin{pmatrix} 6 & 5 \\ 3 & 6 \\ 8 & 4 \\ 7 & -1 \end{pmatrix}$	
	A_2		
	A_3		
	A_4		