SHRIMATHI DEVKUNVAR NANALAL BHATT VAISHNAV COLLEGE FOR WOMEN
(AUTONOMOUS)
(Affiliated to the University of Madras and Re-accredited with 'A+' Grade by NAAC)
Chromepet, Chennai - 600 044.
B.Com. Honours - END SEMESTER EXAMINATIONS APRIL - 2024
SEMESTER - II
23UBHCT2007 - Operations Research

Total Duration : 2 Hrs. 30 Mins. Total Marks : 60

Section B

Answer any **SIX** questions $(6 \times 5 = 30$ Marks)

1. What are the features of Operations Research?
2. Obtain an initial basic feasible solution to the following transportation problem using the North West corner rule.

	A	**B**	**C**	**D**	**Available**
X	11	13	17	14	250
Y	16	18	14	10	300
Z	21	24	13	10	400
Requirement	200	225	275	250	

3. Find the optimal solution for the assignment problem with the assignment problem with the following cost matrix

		Area			
		W	**X**	**Y**	**Z**
Salesman	**A**	11	17	8	16
	B	9	7	12	6
	C	13	16	15	12
	D	14	10	12	11

4. What are different environments in which decisions are made?
5. Find the value of the game

$$\begin{array}{c} \\ A_1 \\ A_2 \\ A_3 \end{array} \begin{array}{c} \begin{array}{ccc} B_1 & B_2 & B_3 \end{array} \\ \begin{pmatrix} 15 & 2 & 3 \\ 6 & 5 & 7 \\ -7 & 4 & 0 \end{pmatrix} \end{array}$$

Contd...

6. Find the transportation using least cost method.

				Supply
	2	7	4	5
	3	3	1	8
	5	4	7	7
	1	6	2	14
Demand	7	9	18	34

7. Find the maximum profit of the following assignment problem $\begin{pmatrix} 18 & 12 & 16 & 13 \\ 16 & 13 & 17 & 17 \\ 17 & 17 & 15 & 14 \\ 15 & 14 & 16 & 17 \end{pmatrix}$

8. Solve the game. $\begin{pmatrix} 8 & -3 \\ -3 & 1 \end{pmatrix}$

Section C

I - Answer any **TWO** questions $(2 \times 10 = 20$ Marks)

9. Explain the Characteristics and limitations of OR.

10. Explain the various quantitative methods which are useful for decision-making under uncertainty.

11. Solve the following assignment problem

$$\begin{array}{c} \\ A \\ B \\ C \end{array} \begin{array}{c} \begin{array}{cccc} I & II & III & IV \end{array} \\ \begin{pmatrix} 18 & 24 & 28 & 32 \\ 8 & 13 & 17 & 19 \\ 10 & 15 & 19 & 22 \end{pmatrix} \end{array}$$

12. Solve the transportation problem by MODI method.

	Warehouse			**Supply**
	A	B	C	
Factory	5	1	7	10
	6	4	6	80
	3	2	5	15
Demand	45	20	40	

II - Compulsory question $(1 \times 10 = 10$ Marks)

13. Solve the following game using dominance property

		Player B		
	╲	**I**	**II**	**III**
Player A	**I**	1	7	2
	II	6	2	7
	III	6	1	6

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