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Total No. of Pages : 02

Total No. of Questions : 07

BCA (Sem.–5)

OPERATION RESEARCH

Subject Code : BC-504

M.Code : 10032

Time : 3 Hrs. Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. **SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.**
2. **SECTION-B contains SIX questions carrying TEN marks each and students have to attempt any FOUR questions.**

SECTION-A

1. Write briefly :

a) Characteristics of Operations Research

b) Limitations of Operations Research

c) Big M Method

d) Duality in LPP

e) Tests for Optimality

f) Unbalanced Assignment problems

g) Decision making under uncertainty

h) Decision trees

i) Advantages of Dynamic programming

j) Degeneracy in transportation problems

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SECTION-B

2. Discuss the role of Operations Research in decision making, giving examples.

3. Solve the following LPP using graphical method :

   Minimize $Z = 30x_1 + 40x_2$

   Subject to the constraints :

   $3x_1 + 5x_2 \leq 15$; $4x_1 - 3x_2 \geq 12$; $2x_1 - x_2 \geq 12$; $x_1, x_2 \geq 0$

4. Solve the following Transportation problem :

	Mkt_1	**Mkt_2**	**Mkt_3**	**Mkt_4**	**Supply**
$Plant_1$	11	16	18	12	**100**
$Plant_2$	14	13	12	18	**200**
$Plant_3$	19	15	16	17	**150**
Demand	**100**	**150**	**50**	**200**	

5. Solve the following Assignment problem :

	J_1	**J_2**	**J_3**	**J_4**
M_1	2	8	9	6
M_2	5	3	7	4
M_3	8	6	2	7
M_4	9	2	4	3

6. Discuss and differentiate between integer and dynamic programming.

7. Explain the concept of decision making. What are the important features of decision making under risk?

NOTE : Disclosure of identity by writing mobile number or making passing request on any page of Answer sheet will lead to UMC case against the Student.

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