R09

Code No: F3204

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
MCA II Semester Examinations, January - 2018
OPERATIONS RESEARCH

Time: 3hrs **Max.Marks:60**

Answer any five questions
All questions carry equal marks
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1. Explain models and limitations of operations research. [12]

2. Solve by using big-M method, the following linear programming problem: [12]
Max. $Z = -2x_1 - x_2$
Subject to $3x_1 + x_2 = 3$
$4x_1 + 3x_2 \geq 6$
$x_1 + 2x_2 \leq 4$
and $x_1, x_2 \geq 0$

3. Explain with an example, the North-West corner rule and the least cost method for obtaining an initial basic feasible solution of a transportation problem. [12]

4. A car hire company has one car at each of five depots a, b, c, d and e. A customer requires a car in each town namely A, B, C, D and E. Distance (in kms) between depots (origins) and towns (destinations) are given in the following distance matrix.

	a	b	c	d	e
A	160	130	175	190	200
B	135	120	130	160	175
C	140	110	155	170	185
D	50	50	80	80	110
E	55	35	70	80	105

How should cars be answer to customer so as to minimize the distance travelled? [12]

5. Find the sequence that minimizes the total elapsed time repaired to complete the following tasks. Each job is processed in the order ACB. [12]

		Jobs						
		1	2	3	4	5	6	7
Machines	A	12	6	5	11	5	7	6
	B	7	8	9	4	7	8	3
	C	3	4	1	5	2	3	4

6. Explain the characteristics of dynamic programming. Illustrate its application to an assumed problem. [12]

7. Give a good presentation on 'Game theory' by functioning upon various relevant concepts and destinations. [12]

8. Explain various kinds of inventory models and related issues/concepts. [12]

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