S.D.E.

B.C.A. (2004 Course Sem- III : WINTER - 2018

SUBJECT : COMPUTER ORIENTED DECISIONS MODELS

Day : Tuesday
Date : 11/12/2018

W-2018-4517

Time : 02.00 PM TO 05.00 PM
Max. Marks : 80

N.B.

1) Attempt any **FIVE** questions from Section – I any **TWO** questions from Section – II.
2) Figures to the right indicate **FULL** marks.
3) Answers to both the sections should be written in **SEPARATE** answer book.

SECTION – I

Q.1 What are the different types of models used in Operations Research? **(10)**

Q.2 Give the advantages and limitations of decision models. **(10)**

Q.3 Give application and limitations of Linear Programming Problem. **(10)**

Q.4 Use graphical method to solve the following Linear Programming Problem. **(10)**

Maximize $Z = 6x_1 + 4x_2$

Subject to $2x_1 + 4x_2 \leq 4$

$4x_1 + 8x_2 \leq 16$

and $x_1, x_2 \geq 0$

Q.5 Use North West Corner Rule and least Cost Method to obtain initial solution to the following transportation problem. **(10)**

Factory	**Store**			$a_i \downarrow$
	A	**B**	**C**	
F_1	10	8	8	8
F_2	10	7	10	7
F_3	11	9	7	9
F_4	12	14	10	4
$b_j \rightarrow$	10	10	8	

Q.6 Find the optimal assignment for the following cost matrix. **(10)**

Salesmen	Areas			
	A_1	A_2	A_3	A_4
S_1	11	17	8	16
S_2	9	7	12	10
S_3	13	16	15	12
S_4	14	10	12	11

Q.7 Define Simulation. Also explain importance and uses of simulation. **(10)**

P.T.O.

SECTION – II

Q.8 Define CPM and PERT. Draw the network, given the following relationships: **(15)**

Event Numbers	1	2,3	4	5	6	7
Preceded by	-	1	2,3	3	4,5	5,6

Q.9 Use Simplex method to solve the following Linear Programming Problem: **(15)**

Maximize $Z = 30x_1 + 40x_2$

Subject to $60x_1 + 120x_2 \leq 12,000$

$8x_1 + 5x_2 \leq 600$

$3x_1 + 4x_2 \leq 500$

$x_1, x_2 \geq 0$

Q.10 Find the optimal solution for the cost matrix as given below: **(15)**

Supply Points	Destinations				Supply
	D_1	D_2	D_3	D_4	
P_1	19	30	50	12	7
P_2	70	30	40	60	10
P_3	40	10	60	20	18
Demand	5	8	7	15	35

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