S.D.E.

M.B.A. (E) SEM-III (2 Year Course) : SUMMER - 2019

SUBJECT : MANAGEMENT SCIENCE AND DECISION TECHNOLOGY

Day : Wednesday
Date : 15/05/2019

S-2019-5207

Time : 10.00 AM TO 1.00 PM
Max. Marks : 70

N.B.

1) Attempt **ANY FOUR** questions from Section – I and **ANY TWO** questions from Section – II.
2) Figures to the **RIGHT** indicate **FULL** marks.
3) Answer to both the sections should be written in SAME answer book.

SECTION – I

Q.1 Define Operations Research. Elaborate historical perspective of Operations Research. **(10)**

Q.2 Find mean and median for the following data : **(10)**

Classes	10-20	20-30	30-40	40-50	50-60	60-70	70-80
Frequency	6	9	11	14	12	10	5

Q.3 Calculate coefficient of mean deviation from median. **(10)**

Marks	0-10	10-20	20-30	30-40	40-50	50-60	60-70
No. of students	10	16	30	50	32	12	8

Q.4 You are given the following data. **(10)**

	X	**Y**
Mean	36	85
Standard Deviation	11	8

Correlation coefficient between X and Y = 0.66

i) Find two regression equations.
ii) Estimate value of x when y = 75.

Q.5 Explain various steps involved in Hungarian Method. How to solve the assignment problem where some assignments are prohibited? **(10)**

Q.6 Solve the following L.P.P. by Graphical Method. **(10)**

Maximize $Z = 3x_1 + 4y$

Subject to :

$x + y \leq 6$

$2x + y \leq 8$

$x, y \geq 0$

Q.7 Write short note on **ANY TWO** of the following. **(10)**

i) M/M/1 Queuing model
ii) Decision under uncertainty
iii) Monte Carlo simulation technique

P.T.O.

SECTION – II

Q.8 Find optimum solution for following transportation problem of minimization. **(15)**

	Warehouse				
Factory	**W_1**	**W_2**	**W_3**	**W_4**	**Capacity**
F_1	19	30	50	16	7
F_2	70	30	40	60	9
F_3	40	8	70	20	18
Demand	5	8	7	14	

Q.9 A company has a team of four salesmen and there are four districts where the company wants to start its business. The following is the profit per day in rupees for each salesman in each district. Find the assignment of salesmen to various districts which will yield maximum profit. **(15)**

	District			
Salesmen	**D_1**	**D_2**	**D_3**	**D_4**
A	16	10	14	11
B	14	11	15	15
C	15	15	13	12
D	13	12	14	15

Q.10 A confectionary sells items with past data of demand per week with frequency is given as below: **(15)**

Demand per week	0	5	10	15	20	25
Frequency	2	11	8	21	5	3

Using the following sequence of random numbers generate the demand for next 10 weeks. Also find the average demand per week.
Random Numbers : 35, 52, 90, 13, 23, 73, 34, 57, 35, 83

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