

CDOE
MASTER OF BUSINESS ADMINISTRATION (EXECUTIVE)
M.B.A. (E) Sem-III : WINTER :- 2021
SUBJECT: MANAGEMENT SCIENCE & DECISION TECHNOLOGIES

Day : Wednesday
Date 16-02-2022

W-8070-2021

Time : 10:00 AM-01:00 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 **SEPARATE** answer book.

SECTION – I

- Q.1** Elaborate the evolution of management theories. Identify major landmarks in the process of evolution. **(10)**

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

Classes	0-10	10-20	20-30	30-40	40-50	50-60	60-70
Frequency	4	12	24	45	20	12	3

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

Marks	10-20	20-30	30-40	40-50	50-60	60-70	70-80
No. of students	10	18	20	50	35	18	6

- Q.4** Find correlation coefficient between X & Y. **(10)**

X	160	164	172	182	166	170	178	175	178
Y	292	280	260	234	266	254	230	260	275

- Q.5** Explain various steps involved in Hungarian Method. How to solve the unbalanced assignment problem? **(10)**

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

$$\text{Minimize } Z = 4x_1 + 5x_2$$

Subject to :

$$3x_1 + 6x_2 \geq 80$$

$$4x_1 + 3x_2 \geq 100$$

$$x_1, x_2 \geq 0$$

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

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

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SECTION – II

- Q.8** A company manufacturing television has four plants with a capacity of 125, 250, 175 and 100 units respectively. The company supplies TV sets to its four showrooms which have a demand of 100, 400, 90 and 60 units respectively. Due to the difference in raw material cost and the transportation cost, the profit per unit (in Rs.) differ which is given in the following table. **(15)**

Plants	Showrooms			
	I	II	III	IV
A	90	100	120	110
B	100	105	130	117
C	111	109	110	120
D	130	125	108	113

By using Vogel's Approximation Method, plan the production programme so as to maximize the profit. Also determine maximum total profit.

- Q.9** Solve the following assignment problem for Minimization. The costs are given below. **(15)**

Operator	Machine				
	X ₁	X ₂	X ₃	X ₄	X ₅
A	15	29	35	20	38
B	21	27	33	17	36
C	17	25	37	15	42
D	14	31	39	21	40
E	19	30	40	19	18

- Q.10** An Engineering firm utilizes re-order level system to replenish stock based on average demand. The demand is given as below : **(15)**

Demand per week	0	1	2	3	4	5	6
Frequency	2	8	22	34	18	9	7

Generate the demand for next 10 weeks using the random numbers given below and calculate average demand.

68, 46, 87, 32, 78, 72, 27, 60, 06, 40

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