

CDOE
MASTER OF COMPUTER APPLICATIONS
M. C. A. Sem-III : WINTER :- 2021
SUBJECT: DECISION TECHNOLOGIES

Day : Friday
Date 18-02-2022

W-5358-2021

Time : 10:00 AM-01:00 PM
Max. Marks: 80

N.B.

- 1) Attempt **ANY FIVE** 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.
- 4) Use of non-programmable calculator is **ALLOWED**.

SECTION - I

Q.1 What is hypothesis? Explain the procedure of testing of hypothesis in brief. (10)

Q.2 What is inventory? Explain basic EOQ model in brief. (10)

Q.3 Solve the following L.P.P. graphically. (10)

$$\text{Max } Z = 15x_1 + 10x_2$$

Subject to

$$4x_1 + 6x_2 \leq 360$$

$$3x_1 \leq 180$$

$$5x_2 \leq 200$$

$$x_1, x_2 \geq 0$$

Q.4 Find Initial Basic Feasible Solution (IBFS) by North West Corner Method (10)
(N.W.C.M.) and Vogel's Approximation Method (V.A.M.).

Sources	Destinations				Supply
	D ₁	D ₂	D ₃	D ₄	
S ₁	21	16	15	3	11
S ₂	17	18	14	23	13
S ₃	32	27	18	41	19
Demand	6	6	8	23	

Q.5 Define Forecasting. Explain applications of forecasting in brief. (10)

Q.6 Calculate mean and median for the following data : (10)

Marks :	10-20	20-30	30-40	40-50	50-60	60-70	70-80
No. of students :	5	16	45	65	50	30	10

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

- i) Decision Theory
- ii) PERT and CPM
- iii) Queuing model

SECTION - II

- Q.8** A department of a company has five employees with five jobs to be performed. (15)
The time (in hours) that each man takes to perform each job is given in the effectiveness matrix.

Jobs	Employees				
	I	II	III	IV	V
A	10	5	13	15	16
B	3	9	18	13	6
C	10	7	2	2	2
D	7	11	9	7	12
E	7	9	10	4	12

How should the job be allocated one per employee so as to minimize the total man-hours?

- Q.9** Calculate Karl Pearson's coefficient of Correlation for the following data. (15)

X:	12	35	13	19	33	58	31	22	29
Y:	27	34	32	24	33	48	29	25	29

- Q.10** Calculate Standard Deviation for the following data : (15)

Marks :	10-20	20-30	30-40	40-50	50-60	60-70	70-80
No. of students :	4	12	25	40	32	20	10

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