

MASTER OF BUSINESS ADMINISTRATION (HUMAN RESOURCE) (CBCS -
2020 COURSE)

M.B.A. (HR) Sem-III :SUMMER- 2022

SUBJECT : OPERATIONS RESEARCH FOR MANAGERS

Day : Thursday

Time : 10:00 AM-12:00 PM

Date : 9/6/2022

S-22858-2022

Max. Marks : 50

N.B.:

- 1) Attempt **ANY THREE** questions from Section – I and **ANY TWO** questions from Section – II.
- 2) Answers to both the section should be written in **SAME** answer book.
- 3) Use of non-programmable **CALCULATOR** is allowed.
- 4) Use graph paper **WHEREVER** necessary.
- 5) Figures to the right indicate **FULL** marks.

SECTION – I

Q.1 What is Operations Research? Explain the phases of Operations Research. **[10]**

Q.2 Solve the following L.P.P. graphically: **[10]**

$$\text{Min } Z = 4x + 2y$$

$$\text{Subject to: } x + 2y \geq 2$$

$$3x + y \geq 3$$

$$4x + 3y \geq 6$$

$$x, y \geq 0$$

Q.3 Find the I.B.F.S., of the following transportation problem by **[10]**

- a) Vogel's Approximation Method (VAM)
- b) Least-Cost Method (LCM)

Plants	Destinations			Supply
	I	II	III	
X	10	3	9	400
Y	12	10	5	300
Z	8	11	12	300
Demand	200	300	500	

Q.4 Bright Bakery keeps stock of a popular brand of cake. Previous experience **[10]** indicates the daily demand as given below:

Daily Demand	0	10	20	30	40	50
Probability	0.01	0.20	0.15	0.50	0.12	0.02

Consider the following sequence of random numbers

48, 78, 19, 51, 56, 77, 15, 14, 68, 09.

Using this sequence simulate the demand for next 10 days.

Q.5 Write short notes on **ANY TWO** of the following: **[10]**

- a) Simulation
- b) MODI method
- c) Scope of Operations Research

P.T.O.

SECTION – II

Q.6 The following data gives cost incurred if a job is performed on different machines. There are 4 jobs and 4 machines so prepare assignment schedule for minimization of total cost. **[10]**

Machines	Jobs			
	A	B	C	D
I	3	8	5	9
II	4	2	1	6
III	3	8	5	7
IV	4	7	10	8

Q.7 Find the optimum solution for the following transportation problem for Minimization. **[10]**

Sources	Destinations				Capacity
	A	B	C	D	
X	9	12	9	6	70
Y	7	3	7	7	60
Z	6	5	9	11	90
Demand	70	50	70	30	

Q.8 A project has the following time schedule: **[10]**

Activity	1 – 2	1 – 3	1 – 4	2 – 5	3 – 6	3 – 7	4 – 6	5 – 8	6 – 9	7 – 8	8 – 9
Time (months)	2	2	1	4	8	5	3	1	5	4	3

- a) Construct PERT Network and compute earliest time and latest time for each activity.
- b) Compute Critical path and its duration.

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