

CDOE
MASTER OF BUSINESS ADMINISTRATION (HUMAN RESOURCE) (CBCS - 2020 COURSE)
M.B.A. (H.R.) Sem-III : WINTER :- 2021
SUBJECT: OPERATIONS RESEARCH FOR MANAGERS

Day : Thursday
Date 17-02-2022

W-22999-2021

Time : 10:00 AM-12:00 PM
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 Define Operations Research. Explain the features of Operations Research. **[10]**

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

$$\begin{aligned}\text{Max } Z &= 3x + 4y \\ \text{Subject to : } 4x + 2y &\leq 80 \\ 2x + 5y &\leq 180 \\ x, y &\geq 0\end{aligned}$$

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

- a) North-West Corner Method (NWCM)
- b) Least-Cost Method (LCM)

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.4 In a cricket season for a one-day match a bowler bowled 50 balls. The frequency distribution of runs scored per ball is given below: **[10]**

Runs / Ball	0	1	2	3	4	5	6
No. of balls	15	10	10	4	8	1	2

Simulate the system for 2 overs and find average runs given in 2 overs by him.
Use the following random numbers:

88, 03, 05, 29, 28, 48, 65, 19, 55, 17, 37, 82.

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

- a) Applications of Operations Research in Business and Management
- b) Degeneracy in Transportation Problem
- c) PERT and CPM Techniques

P.T.O.

SECTION – II

- Q.6** 5 men are available to do five different jobs. From past records the time (in [10]
hours) that each man takes to each job is known and is given in the following
table:

Man	Jobs				
	I	II	III	IV	V
A	2	9	2	7	1
B	6	8	7	6	1
C	4	6	5	3	1
D	4	2	7	3	1
E	5	3	9	5	1

Find the assignment of men to jobs that will minimize the total time taken.

- Q.7** Find the optimum solution for the following transportation problem for [10]
Maximization. The figures given are profit per unit.

Sources	Destinations			Availability
	D ₁	D ₂	D ₃	
S ₁	10	12	15	25
S ₂	17	13	9	30
S ₃	20	15	7	40
Demand	28	43	24	95

- 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 (hours)	20	20	10	40	80	50	30	10	50	40	30

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

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