

**CDOE**  
**MASTER OF BUSINESS ADMINISTRATION (EXECUTIVE) (CBCS-2018 COURSE)**  
**M.B.A. (E) Sem-III : WINTER :- 2021**  
**SUBJECT: OPERATIONS RESEARCH**

**Day : Thursday**  
**Date 17-02-2022**

**W-19369-2021**

**Time : 10:00 AM-01:00 PM**  
**Max. Marks: 70**

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**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** answerbook.
  - 4) Use of **Non-Programmable Calculator** is allowed.
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**SECTION – I**

- Q.1** What is Operations Research? Discuss historical development of operations research. **(10)**
- Q.2** Solve the following Linear Programming Problem graphically : **(10)**  
Maximize  $Z = 3x_1 + 5x_2$   
Subject to :  
 $x_1 + 2x_2 \leq 2000$   
 $x_1 + x_2 \leq 1500$   
 $x_2 \leq 600$   
and  $x_1 \geq 0, x_2 \geq 0$
- Q.3** What is Assignment Problem? Explain two areas of its applications. **(10)**
- Q.4** What is Simulation? Explain its limitations. **(10)**
- Q.5** What is PERT? Differentiate between PERT and CPM. **(10)**
- Q.6** Write short notes on **ANY TWO** of the following: **(10)**  
i) Applications of Operations Research  
ii) Limitations of LPP  
iii) Monte Carlo Simulation Technique

**.. P.T.O.**

## SECTION – II

**Q.7** Find the initial basic feasible solution for the following transportation problem by (15)  
following methods:

- i) North-West Corner Rule
- ii) Vogel's Approximation Method
- iii) Matrix minimum method

Warehouse → Factory ↓	W1	W2	W3	W4	Factory Capacity
F1	19	30	50	10	7
F2	70	30	40	60	9
F3	40	8	70	20	18
Warehouse Requirement	5	8	7	14	34

**Q.8** In the first year MBA class of a certain college, the first lecture starts at 9 a.m. (15)  
following is the probability distribution regarding number of students who are late  
comers for the first lecture each day.

No. of students coming late	05	10	15	20	25
Probability	0.35	0.30	0.20	0.10	0.05

Using the following sequence of random numbers, simulate the pattern for next 12  
days and find average number of students coming late per day.

Random Nos.	95	23	12	65	95	61	86	02	92	45	44	48
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**Q.9** Explain Hungarian Method to solve assignment problem. (15)

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