

Units sold	5	6	7	8	9	10	11
Frequency	0	9	12	24	9	6	0

Find the optimal number of units the stockist should buy each week. Also find EVPI.

UNIT – IV

8. Using suitable examples, explain and illustrate:
 (i) Two-person zero-sum game. (ii) Saddle point
 (iii) Rule of dominance (iv) Mixed strategies.
9. What is queuing theory? In which types of situations can it be applied successfully? Describe the general structure of a queuing system.

12623-2900-(P-4)/(Q-9)/(22)

(4)

Roll No.

12623

MBA 2 Year 3rd Semester (CBCS) 2019-20

(New Scheme)

Examination – December, 2022

OPERATIONS RESEARCH

Paper : 201/MC23C3

Time : Three Hours]

[Maximum Marks : 80

Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard will be entertained after examination.

Note : Section – A (Question No. 1) is compulsory. Attempt four questions from Section – B selecting *one* question from each Unit. All questions carry equal marks.

SECTION – A

1. Briefly explain/illustrate the following :
- Importance of operations research
 - Limitations of graphical method
 - Unbalanced transportation problem
 - Objectives of assignment model

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- (e) Network
 (f) Sequential decision making
 (g) Deterministic model
 (h) Pure strategy

SECTION – B

UNIT – I

2. What are the essential characteristics of operations research ? Describe the phases in an operations research study.

3. Solve the following LPP using simplex method :

Maximize $Z = 160x_1 + 180x_2$

Subject to

$$2x_1 + 5x_2 \leq 100$$

$$2x_1 + 3x_2 \leq 72$$

$$x_1 + x_2 \leq 30$$

$$x_1, x_2 \geq 0$$

UNIT – II

4. Solve the following transportation for minimizing the total transportation cost.

To From	A	B	C	D	Total
X	20	30	50	17	500
Y	70	35	40	60	300
Z	40	12	60	25	200
Total	250	150	360	240	

12623-2900-(P-4)(Q-9)(22) (2)

5. Solve the following assignment problem for maximizing the sales revenue (000 Rs.) :

		Sales Territories			
Salesman		1	2	3	4
A	200	150	170	220	
B	160	120	150	140	
C	190	195	190	200	
D	180	175	160	190	

will the assignments change if sales territory 3 can not be assigned to salesman B ? Show.

UNIT – III

6. You are given the following data for a PERT project :

Activity	1-2	2-3	2-4	3-5	3-6	4-6	5-7	6-7	7-8
o	4	5	4	15	10	8	4	11	6
m	6	7	8	20	18	9	8	12	7
p	8	15	12	25	26	10	12	13	8

Draw the network and find the expected project completion time. Also find the probability that the project will be completed in 55 days.

7. A stockiest of a particular commodity make a profit of Rs. 30 on each unit sold within the same week of purchase otherwise he incurs a loss of Rs. 20 on each unit. Past sales data are shown below :

12623-2900-(P-4)(Q-9)(22) (3)

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