BACHELOR OF BUSINESS ADMINISTRATION (CBCS - 2018 COURSE)

B.B.A. Sem-V : : SUMMER - 2022

SUBJECT : INTRODUCTION TO OPERATIONS RESEARCH

Day : Wednesday
Date : 25-05-2022

S-18857-2022

Time : 02:00 PM-05:00 PM
Max. Marks : 60

N.B.

1) Attempt any **THREE** questions from Section – I and any **TWO** questions from Section – II.
2) Figures to the right indicate **FULL** marks.
3) Answers to both the sections should be written in the **SAME** answer book.
4) Use of non-programmable calculator is allowed.

SECTION – I

Q.1 Briefly trace the history of operations research. What happened to the development of operations research after World War –II? **(12)**

Q.2 Discuss applications and limitations of linear programming problem (LPP) with suitable examples. **(12)**

Q.3 Explain various steps involved in solving Transportation problem using: **(12)**

a) Least cost method
b) Vogel's approximation method

Q.4 A marketing manager has five salesmen and five sales districts. Considering the capabilities of the salesmen and the nature of districts, the marketing manager estimates that sales per month (in hundred rupees) for each salesman in each district would be as follows: **(12)**

		Districts				
		A	B	C	D	E
Salesmen	1	32	38	40	28	40
	2	40	24	28	21	36
	3	41	27	33	30	37
	4	22	38	41	36	36
	5	29	33	40	35	39

Find the assignment of salesmen to districts that will result in maximum sales.

Q.5 Write short notes on any **THREE** of the following: **(12)**

a) Importance of Network Analysis
b) Applications of Assignment problem
c) Scope of operations research
d) Applications of transportation problem

P.T.O.

SECTION – II

Q.6 What is CPM? Explain the circumstances where CPM is a better technique of project management than PERT. **(12)**

Q.7 Use the graphical method to solve the following LP problem **(12)**

Minimize $Z = -x_1 + 2x_2$

Subject to the constraints:

$$-x_1 + 3x_2 \leq 10$$

$$x_1 + x_2 \leq 6$$

$$x_1 - x_2 \leq 2$$

and $x_1, x_2 \geq 0$

Q.8 Solve the following Transportation Problem by using MODI method. **(12)**

	D_1	D_2	D_3	D_4	Supply
S_1	19	30	50	10	7
S_2	70	30	40	60	9
S_3	40	8	70	20	18
Demand	5	8	7	14	34

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