647510 **BBAopeEC537D** **Seat No :_____**

B.B.A. Semester - 5 (*CBCS*) Examination

Oct/Nov.– 2019

STATISTICS GROUP: FUNDAMENTALS OF OPERATION RESEARCH(ELECTIVE)

Time: 2:30 Hours **Marks: 70**

Instructions:

1. All questions are compulsory.
2. Figures to the right indicate marks.

Q.1 (A) What is Operations research? (7)

(B) Give different phases of operations Research and explain their significance for decision making. (7)

OR

"Operations research is an aid for the executive in making his decisions by providing him with the needed quantitative information based on the scientific method of analysis" Discuss the statement and explain how O.R. techniques are helpful in decision making. (14)

Q.2 Let us assume that you have inherited Rs. 1,00,000 from your father-in-law that can be invested in a combination of only stock portfolios, with the maximum investment allowed in either portfolio set at Rs. 75,000. The first portfolio has an average rate of return of 10%, whereas the second has 20%. In terms of risk factors associated with these portfolios, the first has a risk rating of 4 and the second has 9. Since you wish to maximize your return, you will not accept an average rate of return below 12% or a risk factor above 6. Hence you then face the impotentquestion. How much should you invest in each portfolio? Formulate and solve by graphic method. (14)

OR

Q.2 (A) What do you understand by a linear programming problem? (7)

(B) Discuss briefly the application of L.P.P. in any functional area of management. (7)

Q.3 The following data are available for a firm which manufactures three items A,B,C,: (14)

Product	Assembly time (in hrs)	Finishing time (in hrs)	Profit
A	10	2	800
B	4	5	600
C	5	4	300
Firm's capacity	2,000	1,009	

OR

Q.3 (A) Explain simplex Method for maximization case. (7)

(B) Explain the following (7)

(1) Slack variables
(2) Surplus variables
(3) Artificial variables

Q.4 Solve the following travelling T.P. (14)

	W1	W2	W3	W4	W5	supply
P1	20	28	32	55	70	50
P2	48	36	40	44	25	100
P3	35	55	22	45	48	150
Demand	100	70	50	40	40	300/300

OR

Q.4 (A) Discuss one methods of finding initial feasible solution of transportation problem. (7)

(B) Explain unbalanceness in T.P. how you solve it? (7)

Q.5 Five different machines can do any of the five requiredjobs, with different profits resulting from each assignment as shown in the adjoin table. Find out maximum profit possible through optimal assignment.. (14)

	Machine				
Job	A	B	C	D	E
1	30	37	40	28	40
2	40	24	27	21	36
3	40	32	33	30	35
4	25	38	40	36	36
5	29	62	41	34	39

OR

Q.5 (A) What is an assignment problem? (7)

(B) Give difference between T.P. and A.P. (7)

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