Seat No. _____

HH-161100010610

B. B. A. (Sem. VI) (CBCS) (W.E.F. 2016) Examination

April - 2023

Statistics

(Grp : Advanced Operations Research Techniques)

(Old Course)

Time : $2\frac{1}{2}$ Hours / Total Marks : **70**

Instructions : (1) Attempt all questions.
(2) Each question carries equal marks.

1 What is sequencing? Discuss the algorithm for processing 'n' jobs through 2 machines. **14**

OR

1 Find out optimum sequence for the given data and also find total time and ideal time for each machine. **14**

Product	P_1	P_2	P_3	P_4	P_5	P_6	P_7	P_8
Machine M_1	30	45	15	20	80	120	65	10
Machine M_2	20	30	50	35	34	40	50	20

2 What do you mean by Group Replacement Policy? Explain various types of replacement situations. **14**

OR

2 A purchase price of machine is Rs. 80,000. It's maintenance cost and resale value are as follows. After what time machine should be replaced? **14**

Year	1	2	3	4	5	6	7
Maintenance Cost	1000	1200	1600	2400	3000	3900	5000
Resale Value (in '000 Rs.)	75	72	70	65	58	50	45

3 (a) Differentiate between PERT and CPM. **7**
(b) Explain briefly types of float used in network analysis. **7**

OR

3 A small project consists of jobs as given in the following table : **14**

Job	Duration (days)
1-2	9
1-3	8
1-4	15
2-4	5
3-4	10
4-5	2

(i) Draw the network.

(ii) Calculate the project duration and identify the critical path.

4 (a) Explain different types of inventories. **7**

(b) Discuss about the benefits of inventory management. **7**

OR

4 A company supplies needles to the hospitals and like to reduce its inventory cost by determining optimal number of needles to be purchased from the manufacturer. The annual demand is 10,000 units. The ordering cost per order is Rs. 100 and holding cost is Rs. 0.50 per unit per year.

(i) Calculate the optimal order size **3.5**

(ii) Assuming 250 days per year find the number of orders and expected time between orders **7**

(ii) Calculate total inventory cost per year. **3.5**

5 Explain the following terms : **14**

(i) Dominance Rule

(ii) Saddle Point

(iii) Mixed Strategy

(iv) Optimal Strategy

OR

5 Solve the following game and determine the best strategies for both the players and also find the value of the game. **14**

Player - B

Player - A	B_1	B_2	B_3	B_4
A_1	35	65	25	5
A_2	30	20	15	0
A_3	40	50	0	10
A_4	55	60	10	15