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SEAT No. :

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T.Y. B.Com.

356(F) : BUSINESS STATISTICS - III

(2019 Pattern) (Semester - V)

Time : 2½ Hours] *[Max. Marks : 50*

Instructions to the candidates:

1) ***All questions are compulsory.***
2) ***Figures to the right indicate full marks.***
3) ***Use of calculator and statistical table is allowed.***
4) ***Symbols have their usual meanings.***

Q1) a) Fill in the blanks. (any five) : **[5 × 1 = 5]**

i) In game theory, if maximin = minimax, then there exist a _____ point.

ii) The number of defects can be controlled using _____ chart.

iii) We can decide when the car is resale using _____ problem.

iv) Electric fluctuations is belonging to _____ causes.

v) In replacement problem, maintenance cost is always _____.

vi) Defective raw material is belonging to _____ causes.

vii) P chart is _____ type control chart.

b) State whether each of the following statement is true or false (any five) : **[5 × 1 = 5]**

i) Control charts are applying on continuous production process.

ii) If the value of the game is zero, then game is called as fair game.

iii) Value of game is always positive.

iv) If quantity in hand is more than demand then there exist opportunity loss.

v) R-chart is quantitative type control chart.

vi) C-chart is used to control number of defects.

vii) In two person zero-sum game, value of the game is always zero.

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Q2) Attempt any two of the following : **[5 × 2 = 10]**

a) Solve the following game :

Player B

$$\text{Player A} \quad \begin{matrix} \\ A_1 \\ A_2 \\ A_3 \end{matrix} \begin{matrix} B_1 & B_2 & B_3 \\ \left[\begin{matrix} 8 & 8 & 7 \\ 6 & 7 & 2 \\ 5 & 6 & 1 \end{matrix}\right. \end{matrix}$$

b) What do you mean by control limits? What purpose do they serve in control charts?

Write control limits for p chart

c) Explain :

i) State of nature

ii) Tolerance limits

iii) State any two causes each from the assignable causes.

d) The no. of defects in 8-different pins manufactured are as follows :

1, 0, 1, 3, 2, 0, 2, 1

Construct C -chart. Comment on the result.

Q3) a) The maintenance cost and resale value per year of a machine whose purchase price is Rs. 10,000 is given below : **[8]**

Year	Maintenance cost (in Rs.)	Resale value (in Rs.)
1	2000	7000
2	2200	5500
3	2400	4000
4	2600	3000
5	2800	2000
6	3200	1000
7	3700	1000
8	4500	500

When should be machine be replaced?

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b) The demand for a cake in a bakery may be 30, 40, 50, 60 and 70 with respective probabilities 0.2, 0.2, 0.3, 0.2, 0.1. Purchasing cost and selling price of a cake is Rs. 5 and Rs. 10 respectively. Balanced cake is treated as waste. Write the pay off matrix for the given situation. Also prepare opportunity loss table. How many cake should be made using EOL criterion? **[7]**

Q4) a) Explain graphical method to solve 2 × 2 game. **[5]**

b) Write a note on sequencing problem. **[5]**

c) From the following find pay off table. Demand of an item can be 0 to 4 units per days purchase price per unit is Rs. 30, selling price per unit is Rs. 40, unsold stock is complete loss. **[5]**

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