Total No. of Questions : 4]

SEAT No. : ____

PD945

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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 calculater and statistical table is allowed.***
4) ***Symbols have their usual meanings.***

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

i) C-chart is used to control _____.

ii) We use _____criteria to average the elements of payoff of corresponding strategy.

iii) In variable control charts, first we always draw ____control chart

iv) A process is said to be under statistical control if it operates with ____causes

v) EOL stands for_____opportunity loss.

vi) In game theory, if maximin = minimax then there exist _____point.

vii) Defective raw material is belonging to _____causes.

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

i) P-chart is used to control proportion of defectives.

ii) In sequencing problem we can use value of money which remains the same during the period.

iii) Value of the game is zero.

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

v) R chart is quantitative type control chart.

vi) If the value of game is greater than zero, then game is called as fair game

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

P.T.O.

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

a) Solve the following pay off matrix using the principle of dominance

		player B		
		B1	B2	B3
Player A	A1	9	8	–7
	A2	3	–6	4
	A3	6	7	–8

b) Explain : Acts specification limits, tolerance limits.

c) The number of defects in 10 different carpets are as follows:

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

Construct c-chart, comment on the result

d) Explain: expected monetary value, sequencing problem, capability Index.

Q3) a) A machine is set to deliver packets of given tensile strength, 10 samples of size 5 each were recorded as follows.

Sample No.	1	2	3	4	5	6	7	8	9	10
Mean	15	17	15	18	17	14	18	15	17	16
Range	7	7	4	9	8	7	12	4	11	5

Construct control charts for mean and range. Comment on whether the proces seems to be under control. (Use n=5, A2=0.577, D3=0, D4=2.115) **[8]**

b) From the following pay-off table (of profit) determine optimal strategy using maximin, maximax, Laplace and Harwicz criterion. Take α-0.7 **[7]**

Demand / Stock	A1	A2	A3	A4
S1	16	10	12	7
S2	13	12	9	9
S3	11	14	15	14

Q4) a) The maintenance cost and resale value of a machine whose purchase price is Rs. 7000 is given below.

Year	Maintenance cost (Rs.)	Resale value (Rs.)
1	900	4,000
2	1,200	2,000
3	1,600	1,200
4	2,100	600
5	2,800	500
6	3,700	400
7	4,700	400
8	5,900	400

When should the machine be replaced? **[8]**

b) Write the pay off matrix for the given situation the demand for Vadapav may be 21, 22, 23, 24, and 25 with respective probabilities 0.1, 0.15, 0.2, 0.25 and 0.3 making cost and selling price of one Vadapav is Rs. 8 and Rs. 10 respectively. Balance Vadapav is treated as waste. Also obtain regret table. How much Vadapav should be make using EOL criteria? **[7]**