M. Sc. (Statistics) (Sem. III) (CBCS) Examination

December - 2019

MS - 302 : Industrial Statistics

Faculty Code : 003
Subject Code : 1173002

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

Instructions : (1) Attempt all questions.

(2) Each question carries equal marks.

1 Answer the following : (Any **Seven**)   **14**

(1) $\overline{X}$ and R charts is known as chart for _____

(2) Chart for fraction defective is defined as _____

(3) OC curve means _____

(4) Upper control limit for P chart is _____

(5) What is the lower control limit for np chart?

(6) Write down the all control limits for R charts.

(7) Pareto chart also called _____

(8) Control limits for the $\overline{X}$ bar chart

(a) UCL _____

(b) Central line _____

(c) LCL _____

(9) Define ARL.

(10) Process Capability Index = _____

2 Answer the following : (Any **Two**)   **14**

(1) When to use X–Bar and R charts. Give Real life Example.

(2) Explain Process Capability.

(3) Define control chart and give its uses. Write types of control charts.

3   Answer the following :   **14**
   (1)   Explain Pareto chart with an Example.
   (2)   Explain Single Sample Acceptance Plan.

<div align="center">OR</div>

3   Answer the following :   **14**
   (1)   Explain CUSUM chart.
   (2)   Define Average Run length and write its control chart performance.

4   Answer the following : (Any **Two**)   **14**
   (1)   Define Defect concentration diagram and write its uses.
   (2)   Explain Hotelling T2 Control chart.
   (3)   Ten Samples each of size 5 are drawn at regular intervals from a manufacturing process. The sample mean (X) and thin ranges (R) are given below :

Sample No	Mean	Range
1	49	7
2	45	5
3	48	7
4	53	9
5	39	5
6	47	8
7	46	8
8	39	6
9	51	7
10	45	6

Calculate control limits and draw conclusion.

5   Answer the following : (Any **Two**)   **14**
   (1)   Explain Process Capability Index and Operating characteristic Curve.
   (2)   Define :
      (i)   Quality Control
      (ii)   Process Control
      (iii) SPC
   (3)   What is a Check sheet? When to use a check sheet? And give an Example.
   (4)   Explain Cause and Effect Diagram.