

LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034



B.Sc. DEGREE EXAMINATION – STATISTICS

SIXTH SEMESTER – APRIL 2022

UST 6503 – STATISTICAL QUALITY CONTROL

Date: 20-06-2022

Dept. No.

Max. : 100 Marks

Time: 01:00 PM - 04:00 PM

PART – A

Answer ALL the Questions.

(10 x 2 =20 Marks)

1. Name some of the dimensions of quality.
2. Define quality assurance
3. What is a histogram?
4. Define box-plot.
5. State the major tools of statistical process control.
6. When a process is said to be an out-of-control process?
7. In what ways CUSUM chart can be represented?
8. What is CUSUM chart?
9. Give any two advantages of acceptance sampling.
10. Define a single-sampling plan.

PART – B

Answer any FIVE Questions.

(5 x 8 =40 Marks)

11. Write short notes on management aspects of quality improvement.
12. Discuss the construction of a stem-and-leaf plot.
13. Explain the control chart for fraction defectives.
14. Briefly explain slant control charts.
15. Explain the basic concepts of (i) double (ii) multiple and (iii) sequential sampling plans.
16. The number of defects on 20 items is given below:

Item No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
No. of defects	2	0	4	1	0	8	0	1	2	0	6	0	2	1	0	3	2	1	0	2

Devise a suitable control scheme for the future.

17. Explain Consumer's and producers' risks.
18. Write down the advantages and disadvantages of SQC.

PART – C

Answer any TWO Questions.

(2 x 20 =40 Marks)

19. Explain Deming's 14 point philosophy.

20.

(i) Explain with an example to make a QQ plot.

(ii) Discuss assumptions of normality made in the QQ plot.

(15+5)

21. A machine is set to deliver the packets of a given weight. Ten samples of size five each were examined and the following results were obtained:

Sample No.	1	2	3	4	5	6	7	8	9	10
Mean	43	49	37	44	45	37	51	46	43	47
Range	5	6	5	7	7	4	8	6	4	6

Calculate the values for the central line and the control limits for the mean chart and range chart.

Comment on the state of control.(Given for $n=5$, $d_2=2.326$, $d_3=0.864$)

22. Explain the double sampling plan in detail.

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