LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

B.Sc. DEGREE EXAMINATION – **STATISTICS**

SIXTH SEMESTER – **APRIL 2023**

16/17/18UST6MC03 – STATISTICAL QUALITY CONTROL

Date: 05-05-2023   Dept. No.   Max. : 100 Marks
Time: 09:00 AM - 12:00 NOON

PART – A

Answer ALL questions   **(10x 2 = 20 Marks)**

1. Define modern definition of Quality.
2. Why do we need Total Quality Management?
3. When do we use stem and leaf plot?
4. State any two properties of histogram.
5. State the control limits for u chart.
6. Write any two application of c-chart.
7. Define Process capability analysis.
8. What do you understand by CUSUM control chart?
9. Write ant two advantages of acceptance sampling plan.
10. Define rejecting quality level.

PART – B

Answer any FIVE questions   **(5 x 8 = 40 Marks)**

11. Explain statistical methods for quality control and improvement.
12. Elucidate on the Eight Dimensions of Quality
13. Discuss about stem and leaf plot with an example.
14. Explain the procedures for constructing Box Plot with an illustration
15. Derive the control limits for $\bar{X}$ and R chart.
16. What are the advantages of variable control charts over attribute control charts?
17. Explain the Process Capability Analysis using histogram
18. Distinguish between Producer's risk and Consumer's risk.

PART – C

Answer any TWO questions   **(2 x 20 = 40 Marks)**

19. Explain Deming's fourteen points for implementing quality and productivity improvement.

20. a) Write short notes on the following pattern interpretation on control charts
    i) Cyclic pattern
    ii) A shift in process level
    iii) Trend in process level
    iv) Mixture pattern
    b) What are p and np charts? How are they constructed?   **(8 + 12)**

21. a) Explain C_p, C_{pk} and C_{pm} in process capability analysis.
    b) Write short notes on CUSUM control chart.   **(10 + 10)**

22. Explain Single Sampling Plan in detail.

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