



**LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034**

**M.Sc. DEGREE EXAMINATION – STATISTICS**

**THIRD SEMESTER – APRIL 2014**

**ST 3817 - STATISTICAL QUALITY CONTROL**

Date : 08/04/2014  
Time : 01:00-04:00

Dept. No.

Max. : 100 Marks

**Section – A**  
**(Answer all the questions)**

**( 10 x 2 =20)**

1. Define company-wide quality control.
2. Define Juran Trilogy
3. What is downgrading in quality cost.
4. Write any four considerations in forming lots for inspection.
5. Give any five reasons for popularity of the control charts.
6. What is variable sampling interval?
7. Express average time to signal.
8. How to compute one side upper and lower in tabular cusum?
9. Define six sigma.
10. What is meant by operating characteristic curve?

**Section – B**  
**(Answer any five questions)**

**( 5 x 8 =40)**

11. Explain the focus of standard in the quality system.
12. Discuss the rational sub-groups concept.
13. Describe Defect Concentration Diagram.
14. Explain the construction of S chart and  $S^2$  chart.
15. Write the disadvantages of V-mask procedure.
16. What are the choice between attributes and variable control charts?
17. Explain process capability analysis using histogram.
18. Write notes on the following
  - i) AQL
  - ii) LTPD
  - iii) RQL
  - iv) LQL

**Section – C**

(Answer any two questions)

( 2 x20 =40)

19. Describe the important frame work for implementing quality and productivity improvement.

20. a) Express cumulative sum control chart and tabular cumulative sum control chart.

b) Validate whether the process is under control using tabular cumulative sum control chart for the following data ( 8 + 12)

Sub group i	$x_i$
1	12.33
2	9.78
3	12.98
4	12.54
5	15.87
6	13.56
7	12.24
8	14.87
9	12.66
10	13.81
11	12.20
12	14.83
13	12.90
14	13.91
15	14.45

21. a) Explicate the OC curve in double sampling plan for attributes.

b) Discuss sequential sampling plans. (10+10)

22. a) Elucidate process capability ratios for an off-center process.

b) Describe the process capability analysis using  $\bar{x}$  and R charts. (10+10)