



LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

M.Sc. DEGREE EXAMINATION – STATISTICS

FOURTH SEMESTER – APRIL 2014

ST 4810 - STATISTICAL PROCESS CONTROL

Date : 16/04/2014
Time : 09:00-12:00

Dept. No.

Max. : 100 Marks

Section A

Answer **ALL** the Questions

(10 X 2 = 20)

1. What is the role of OC curve in Acceptance Sampling?
2. Name the two ways to represent CUSUM charts.
3. In what steps of DMAIC is process capability analysis used and name a technique used for the same?
4. Define fraction Non-conforming.
5. What is Run chart?
6. Name the magnificent seven in SPC.
7. What are USL and LSL?
8. What are the three components of Juran Trilogy?
9. Define statistical process control.
10. What are the three approaches to lot sentencing?

Section B

Answer **Any FIVE** Questions

(5 X 8 = 40)

11. Elucidate on Double sampling Plans for attributes.
12. Describe the statistical principle behind the construction of control chart for fraction non-conforming.
13. What are the different types of control chart?
14. Explain the method of construction of \bar{X} and S chart for variable sample size?
15. What are the four scenarios in the interpretation of the control chart?
16. Describe the measure step in the DMAIC Process.
17. Elucidate on Shewart Cycle. Name the four dimensions of an optimal process.
18. Write the short notes on SIPOC diagram.

Section C

Answer **Any TWO** Questions

(2 X 20 = 40)

19. a. Describe the construction of CUSUM Charts.
b. Explain the Phase 1 and Phase 2 operations in \bar{X} chart and R chart.
20. a. Discuss the various classifications of Acceptance sampling plans.
b. Explain the advantages and disadvantages of Acceptance sampling.
21. What are the three approaches followed in the construction of p chart when we have a variable sample size?
22. Describe Process Capability Analysis using Histogram, Probability plots and Process capability Ratio.
