LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034
B.Sc. DEGREE EXAMINATION – STATISTICS

SIXTH SEMESTER – **APRIL 2013**

ST 6605/ST 6602 - STATISTICAL PROCESS CONTROL

Date: 30/04/2013   Dept. No. _____   Max. : 100 Marks

Time: 1:00 - 4:00

PART A – (10 x 2 =20)

Answer ALL the questions:

1. Define a) quality of design   and   b) quality of conformance

2. Why TQM philosophy is so important in today's scenario?

3. State the uses of stem and leaf plot.

4. State three properties which one may easily be seen in presenting a histogram.

5. State the applications of control charts?

6. Mention any two situations in which C- charts can be used.

7. Point out the purpose of process capability analysis.

8. The following are the $\bar{X}$ and R values of 4 subgroups of readings:

   $\bar{X}$ = 10.2, 12.1, 10.8, and 10.9   ;   R = 1.1, 1.3, 0.9 and 0.8

   Find the process capability.   [Given : A_2 = 0.73; D_3 = 0 ; D_4 = 2.28 ; d_2 = 2.059]

9. Write down the disadvantages of acceptance sampling.

10. Distinguish between group sequential sampling and item-by-item sequential sampling.

PART-B (5 x 8 – 40 Marks)

Answer any FIVE questions

11. Discus the meaning of quality improvement.

12. Describe the basic concepts of TQM.

13. Explain the concept of Box-plot technique.

14 Briefly describe the methodology of constructing and using control charts.

15. How will you prepare the control charts for fraction defectives? Explain

16 Discuss salient features of Slant control charts and its construction.

17 What is Acceptance Sampling? Mention the situations it is most likely to be used.

18. Explain Double sampling inspection plan.

<div align="center">Part C [2 x 20 = 40 Marks]</div>

Answer any TWO questions

19. a) Discuss the Statistical methods for quality improvement.

    b) Explain the basic concepts required for a successful TQM programme.

20. a) Explain $\bar{X}$ and R charts and obtain their control limits.

    b) Compare R chart versus σ- chart.

21. a) Outline the procedure of constructing V-mask

    b) Explain the process capability analysis with an illustration.

22. a) Point out the advantages of acceptance sampling.

    b) What are continuous sampling plans and mention a few situations where these plans are

       applied.

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