

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

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

**SIXTH SEMESTER – NOVEMBER 2015**

**ST 6605/ST 6602 - STATISTICAL PROCESS CONTROL**

Date : 26/09/2015  
Time : 09:00-12:00

Dept. No.

Max. : 100 Marks

**PART A**

Answer ALL the questions.

( 10 x 2 = 20 Marks)

1. What is meant by Quality Control?
2. Why TQM Philosophy is very important in today's scenario?
3. What is meant by Box plot?
4. Explain frequency distribution.
5. When is a Process said to be in control?
6. Mention any two situations in which C – Chart can be used.
7. Explain process capability analysis.
8. Write the purpose of process capability analysis.
9. Define single sampling plan for attributes.
10. Mention the need for Acceptance sampling plan.

**PART B**

Answer any FIVE questions.

( 5 x 8 = 40 Marks)

11. Discuss the link between quality improvement and productivity.
12. Explain the various principles of TQM.
13. Describe Q-Q plot technique and write its application.
14. Explain the construction of 'P' chart.
15. Describe the Statistical basis of  $\bar{X}$  and R charts.
16. Distinguish between CUSUM control chart and Shewart control chart.
17. Write the situations where acceptance sampling is most likely to be useful.
18. Explain in detail the item by item sequential sampling plan.

**PART C**

Answer any TWO questions.

( 2 x 20 = 40 Marks)

19. (a) State the requirements for successful implementation of TQM.  
(b) Explain "Cost of Prevention".

20. (a) The head of the personnel department of an Insurance Company maintains records of yearly medical leave taken by 30 employees. The data collected by him is as given below:

13	47	10	3	16
7	25	8	21	19
12	45	1	8	4
6	2	14	13	7
34	13	41	28	50
14	26	10	24	36

Construct a Stem-leaf Diagram. The entries on the leaves should be in an increasing order.

- (b) Describe process- capability analysis using a Histogram.

21. (a) Explain the logic behind the usage of 3 sigma control limits.

(b) Write the advantages of variable control charts over attribute control charts.

22. (a) Discuss how a CUSUM control chart can be used to detect upward shifts in the process mean.

(b) Explain the operating procedure for double sampling plan and multiple sampling plans.

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