LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

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

SIXTH SEMESTER – **NOVEMBER 2016**

ST 6608 – STATISTICAL QUALITY CONTROL

Date: 16-11-2016   Dept. No.   Max. : 100 Marks
Time: 09:00-12:00

PART –A

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

1. Define Quality.
2. What are elements of TQM?
3. Explain qq plot.
4. Write any two uses of stem and leaf plot.
5. What do you understand by "process control"?
6. What is the purpose of p-chart.
7. Write any two application of CUSUM chart.
8. Mention the disadvantages of accepting sampling.
9. What are producer risk and consumer risk?
10. Define acceptance quality level and Average Sample Number.
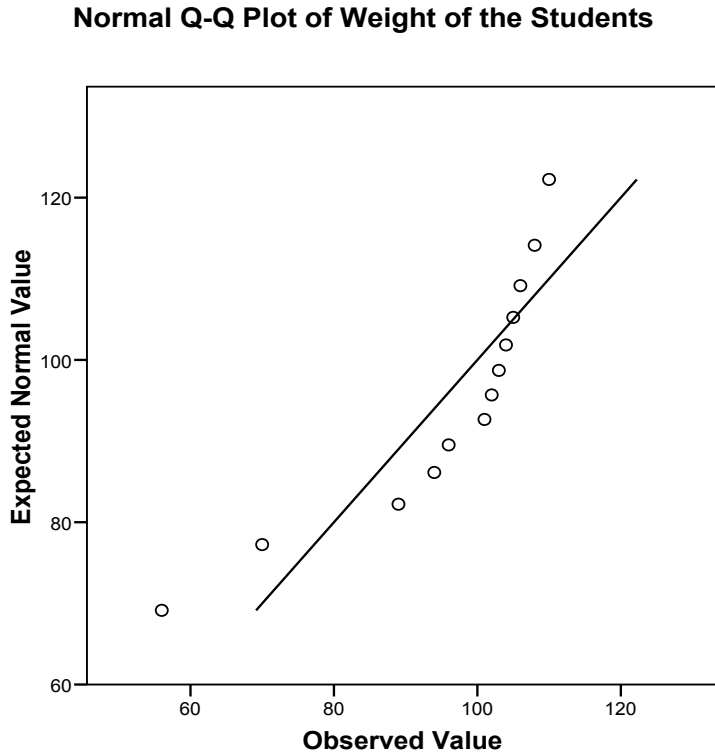
PART –B

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

11. List out the major reasons for business process re-engineering failures.
12. State the uses of TQM.
13. Explain stem and leaf plot.

14. Construct a box plot for the following data:
    12, 5, 22, 30, 7, 36, 14, 42, 15, 53, 25
15. Describe the procedure for construction of $\overline{X}$ and R chart.

16. Interpret the following qq plots:

Normal Q-Q Plot of Weight of the Students

17. What is CUSUM chart? Why use a CUSUM chart.
18. What is acceptance sampling plan? Give suitable example.

PART –C

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

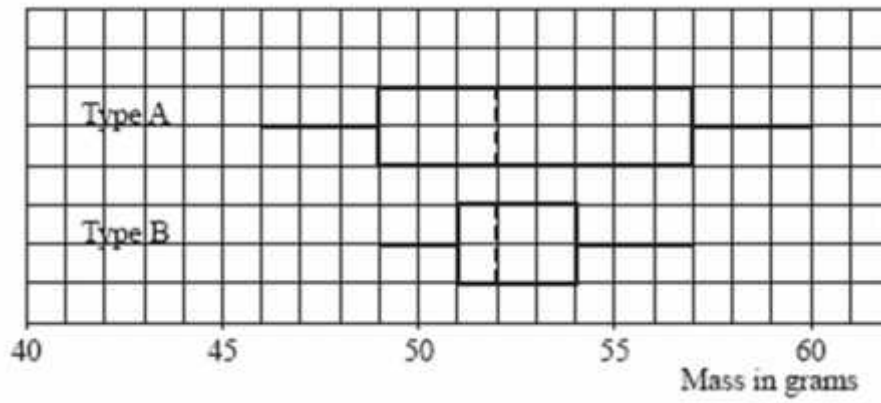19. (a) Explain Six basic concepts of TQM.

    (b) List out the benefits of TQM.

20. (a) Construct Stem and Leaf plot for two sets of data are labeled as Grade for class A and B.

    Grade for class A: 60, 68, 70, 75, 84, 86, 90, 91, 92, 94, 94, 96, 100, 100

    Grade for class B: 60, 60, 70, 71, 73, 73, 75, 76, 77, 84, 85, 86, 91, 92.

    (b) A gardener collected data on two types of tomato. The box plot below
        shows data for the masses in grams of the tomatoes in the two samples.
        Compare and contrast the two types and advise the gardener which type of
        tomato he should grow in future.

A box plot comparing Type A and Type B, with x-axis labeled "Mass in grams" ranging from 40 to 60.

21. (a) Differentiate between Shewhart control charts and CUSUM control charts.

   (b) Distinguish between Producer Risk and Consumer Risk.

22. (a) Explain the basic concepts of Double and Sequential sampling plan.

   (b) Explain p and np control charts.

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