THIRD SEMESTER M.Sc. DEGREE EXAMINATION, OCTOBER 2017
(Regular/Supplementary/Improvement)
(CUCSS - PG)
CC15P ST3 E03 - STATISTICAL QUALITY CONTROL
(Statistics)
(2015 Admission Onwards)

Time : Three Hours   Maximum : 36 Weightage

PART A
*Answer **all** questions.*
Each question carries 1 weightage.

1. What do you understand by statistical quality control? Distinguish between 'process control' and 'product control'.

2. Distinguish between chance causes and assignable causes.

3. Outline the theory underlying control chart for defects.

4. When should the control charts for fraction defective be prepared?

5. What information is provided by the operating –characteristic curve of a control chart?

6. Define consumer's risk and producer's risk.

7. What do you understand by an acceptance sampling plan?

8. Explain the differences between sampling by attribute and by variables.

9. Differentiate between AQL and AOQL.

10. Explain the role of continuous sampling plans with suitable examples.

11. What is sequential sampling plan?

12. What is ARL?

(12 x 1=12 weightage)

PART B

*Answer any **eight** questions.*

Each question carries 2 weightage

13. Describe the different types of control chart for variable.

14. Discuss type I and type II errors relative to the control chart.

15. What is meant by specification limits and control limits? Does a process in statistical control ensure that the entire product will be within specifications?

16. Explain CSP-3.

17. "Six sigma is a statistical measure used to ensure quality of products and services."Discuss.

18. Explain the use of V mask.

19. Explain the double sampling inspection plan.

20. What is meant by rectifying inspection? Obtain the AOQ function of a single sampling plan.

21. What is AOQL? How do you use it for the construction of sampling plan?

22. What is ASN? Explain.
23. Explain the construction of EWMA control chart.
24. Obtain the control limits of $\bar{X}$-R chart when the process dispersion is unknown. How would do you identify the lack of control of the process using $\bar{X}$-R.

(8 x 2=16 weightage)

PART C

*Answer any **two** questions.*

Each question carries 4 weightage.

25. What is ATI? How will you compute the ATI for single sampling and double sampling?
26. Explain the OC curve of a Double sampling plan.
27. Explain the terms :(i) Trial control limits (ii) 3σ limits (iii) Modified control limits and (iv) Specification limits.
28. What is quality improvement? How do you carry out quality management?

(2 x 4=8 weightage)