

**FACULTY OF SCIENCE****B.Sc. V – Semester Examination, November / December 2019****Subject: Statistics****Statistical Quality Control and Reliability****Paper: VI – A (DSE E – 1)****Max.Marks: 60****Time: 3 Hours****PART – A (5x3 = 15 Marks)**  
**(Short Answer Type)****Note:** Answer any FIVE of the following questions. Each question carries 3 marks.

- 1 Write the uses of statistical quality control.
- 2 What are the different types of variables? Explain.
- 3 Write about importance of SQC in industry.
- 4 List the applications of C-Chart.
- 5 Define Natural Tolerance Limits and Specification Limits.
- 6 Explain the terms:
  - i) ASN
  - ii) ATI
  - iii) AOQL
- 7 Distinguish reliability and quality
- 8 Write about:
  - i) Failure Density
  - ii) Hazard Rate
  - iii) Modes of Failure.

**PART – B (3x15 = 45 Marks)**  
**(Essay Answer Type)****Note:** Answer all the following three questions. Each question carries 15 marks.

- 9 a) Define Statistical Quality Control. Explain the statistical basis for Shewart Control Charts.

**OR**

- b) Explain interpretation of Mean and Standard Deviation Chart.

- 10 a) Derive modified control limits.

**OR**

- b) Derive control limits for number of defects for 'n' units. Write interpretation of 'C' Chart.

- 11 a) Explain designing of double sampling plan and construction of its OC curve.

**OR**

- b) Explain series and parallel configuration of a system and derive the reliabilities of the same.