

## Question Bank

### Statistical Quality Control and Reliability

#### Unit-1

1. What is SQC and types of variation?
2. Describe the Importance of  $3\sigma$  control limit.
3. Explain the construction of mean chart ( $\bar{X}$ ).
4. Describe the construction of range chart (R).
5. Explain the construction of Standard deviation chart (S.D).
6. Problems based on Mean, Range and Standard deviation chart.
7. Describe the fractional defective control chart (P-chart) and its varying sample size.
8. Describe the number of defective control chart (np-chart) and its varying sample size.
9. Problems based on d chart and np chart.

#### Unit-2

1. Explain the number of defects control chart (c-chart) and its varying sample size chart (u-chart).
2. Definition of defect and defectives.
3. Describe the application of c-chart.
4. Problems based on C and U chart.
5. Describe about  $6\sigma$  concept.
6. Explain the Process Capability Index or ratios.
7. Compare the Natural Tolerance limit with Specification limits.

#### Unit 3

1. What is Acceptance Sampling plan and state its application?
2. Explain the types of Sampling plan.
3. Describe the determination of 'n' and 'p' parameters.
4. What is Single Sampling plan? Explain ASN and ATI of Single Sampling plan.
5. Explain OC curve of Double Sampling plan.
6. What is Double Sampling plan? Explain ASN and ATI of Double Sampling plan.

7. Describe Single sampling plan in binomial and Poisson distribution.
8. Problems based on Single and Double Sampling plan.
9. Definitions of:
  - a. Acceptance Quality Level (AQL)
  - b. Lot Tolerance Proportion Defective (LTPD)
  - c. Consumer Risk
  - d. Producer risk
  - e. Process Average Fraction defective
  - f. Average Total Inspection (ATI)
  - g. Average Sample Number (ASN)
  - h. Average Outgoing Quality (AOQ)
  - i. Average Outgoing Quality Level (AOQL).
10. Describe about OC Curve.

#### **Unit-4**

1. What is Reliability? Explain about Reliability measures.
2. Explain the modes of failure.
3. What is Exponential Distribution?
4. Explain the Reliability function in terms of hazard rate.
5. Describe about the Hazard models.
6. Explain about the System Reliability.
7. Problems based on Reliability.