

**BACHELOR OF VOCATION**  
**Production Tool and Die Manufacturing**  
**Subject: Quality Control & Reliability Eng.**  
**Subject Code: IMS-601**  
**Semester: Sixth**  
**July 2022**  
**Theory (External): 70 Marks**  
**Time: 03 Hours**

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**Instructions to the Students**

1. This Question paper consists of two Sections. All sections are compulsory.
2. Section A comprises 10 questions of objective type in nature. All questions are compulsory. Each question carries 2 marks.
3. Section B comprises 8 essay type questions out of which students need to do any 5. Each question carries 10 marks.
4. Read the questions carefully and write the answers in the answer sheets provided.
5. Do not write anything on the question paper.
6. Wherever necessary, the diagram drawn should be neat and properly labeled

Roll Number									

**SECTION –A (SHORT/OBJECTIVE TYPE QUESTIONS)**  
(10x2= 20 Marks)

- A. Classify the various costs involved in maintaining the product quality.
- B. What are the functions of BIS and ISO 9000?
- C. What are the applications of X and R charts?
- D. What do you understand by variables and attributes in control charts?
- E. Explain the term maintainability.
- F. How the probability of acceptance is calculated in single sampling technique?
- G. Mention the standard sampling plans with their usages.
- H. What are the typical failure characteristics during a test?
- I. Mention some reliability improvement techniques with their applications.
- J. What is standby redundancy in quality reliability?

**SECTION –B (ESSAY TYPE QUESTIONS)**  
(5x10 = 50 Marks)

1. What do you understand by KAIZEN technique? Mention its industrial significances?
2. Write short note on:  
(a) Quality auditing,  
(b) TQM practices
3. What do you mean by process capability? How does it measured? Explain thoroughly.
4. Explain the calculation procedure for X and R charts.
5. Explain the characteristics of OC curves in details.
6. Explain single, double and multiple sampling plans with examples.
7. Write short notes on:  
(a) MTBF,  
(b) MTTF,  
(c) Redundancy
8. Suppose an electrical component has a uniform failure rate of 0.00001 per hour. Calculate its reliability for a period of 10000 hours.

==END OF THE PAPER==