

GUJARAT TECHNOLOGICAL UNIVERSITY

BE- SEMESTER-VII EXAMINATION – WINTER 2025

Subject Code: 3171929

Date:13-11-2025

Subject Name: Quality and Reliability Engineering

Time:10:30 AM TO 01:00 PM

Total Marks:70

Instructions:

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. Simple and non-programmable scientific calculators are allowed.

- Q.1** (a) Explain briefly Bench Marking. **03**
(b) What is the obstacles to implementing a TQM. **04**
(c) Explain Quality Production through KANBAN. **07**
- Q.2** (a) State objectives of quality control. **03**
(b) Explain the concept of 5S. **04**
(c) Define Zero defects. Discuss various steps in implementing Zero defects. **07**
- OR**
- (c) Define Maintainability and availability and compare it with reliability. **07**
- Q.3** (a) What is Muda? Explain the various types of Muda. **03**
(b) Discuss the Risk Assessment procedures in design. **04**
(c) What are the types of System reliability models? Discuss with examples. **07**
- OR**
- Q.3** (a) Discuss Just in Time Concept. **03**
(b) Explain PDCA cycle. **04**
(c) Define QFD and Discuss house of quality-product planning matrix. **07**
- Q.4** (a) List out 7 new Quality improvement tools. **03**
(b) Explain Fault tree analysis [FTA]. **04**
(c) Explain basic concepts, scope and implantation barriers of ISO 14000 **07**
- OR**
- Q.4** (a) Define following: (1) Quality (2) TQM (3) Poka yoke. **03**
(b) What are the Reliability Parameters? **04**
(c) Explain the bathtub curve in terms of reliability. **07**
- Q.5** (a) List out various steps of Experimental design. **03**
(b) Discuss about Taguchi approach in context to DOE **04**
(c) Define DOE and enlist the components of DOE. Discuss Taguchi Quality Loss Function. **07**
- OR**
- Q.5** (a) Define: Skewness and Kurtosis of life dispersion **03**
(b) Describe concept of Concurrent Engineering. **04**
(c) List out 7 new management tools and explain any five in detail. **07**
