Enrolment No./Seat No_____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–VII EXAMINATION – SUMMER 2025

Subject Code:3171929 Date:08-05-2025

Subject Name:Quality and Reliability Engineering

Time:02:30 PM TO 05:00 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)**	Define following: (1) Parameter Design (2)System Design (3) Tolerance Design	**03**
	(b)	Discuss Just in Time Concept.	**04**
	(c)	What is the role of ISO 14000 in managing good environmental practices.	**07**
Q.2	**(a)**	Explain the concept of 5S.	**03**
	(b)	Give various definitions of quality.	**04**
	(c)	Define DOE and enlist the components of DOE. Discuss Taguchi Quality Loss Function.	**07**
		OR	
	(c)	Enlist the various phases of Quality Revolution and discuss inspection, quality control and quality assurance.	**07**
Q.3	**(a)**	What is Kaizen? Explain in brief.	**03**
	(b)	Explain the robust design in terms of Design of Experiments.	**04**
	(c)	Define QFD and Discuss house of quality-product planning matrix.	**07**
		OR	
Q.3	**(a)**	Define following: (1) FMEA (2) TQM (3) Poka yoke.	**03**
	(b)	Explain Total Productive Maintenance.	**04**
	(c)	Discuss TQM and its barriers in implementation.	**07**
Q.4	**(a)**	Write difference between reliability and quality.	**03**
	(b)	Explain characteristics of Quality in Service and manufacturing sector.	**04**
	(c)	Draw and explain Bath tub Curve.	**07**
		OR	
Q.4	**(a)**	State objectives of quality control.	**03**
	(b)	Discuss the Risk Assessment procedures in design.	**04**
	(c)	Define Maintainability and availability and compare it with reliability.	**07**
Q.5	**(a)**	Explain briefly Bench Marking.	**03**
	(b)	What are the Reliability Parameters?	**04**
	(c)	What are the types of System reliability models? Discuss with examples.	**07**
		OR	
Q.5	**(a)**	What is the obstacles to implementing a TQM.	**03**
	(b)	Define Zero defects. Discuss various steps in implementing Zero defects.	**04**
	(c)	Explain Quality Production through KANBAN.	**07**

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