

GUJARAT TECHNOLOGICAL UNIVERSITY

BE- SEMESTER- VII EXAMINATION – SUMMER 2026

Subject Code:3171929

Date:20-05-2026

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.

	MARKS
Q.1* (a) Define Quality as per view of Dr. Juran and Dr. Philip Crosby.	03
(b) Explain concept of Reliability with suitable example	04
(c) Describe Agile manufacturing process.	07
Q.2 (a) Define, Cumulative function and reliability function.	03
(b) Elaborate design Reliability and Inherent Reliability	04
(c) Write short note on Reliability repairable system.	07
OR	
(c) Explain in details about six sigma process.	07
Q.3 (a) Explain just in time manufacturing.	03
(b) Describe about Lean manufacturing.	04
(c) Describe Failure Mechanism and failure severity.	07
OR	
Q.3 (a) Explain TPM along with advantages and application.	03
(b) Describe ISO 14000 and QS 9000 with example.	04
(c) Write short notes on ISO 9000.	07
Q.4 (a) Explain concept of Robust design in context to DOE	03
(b) Describe experimental design with a suitable example.	04
(c) Elaborate Full factorial and Fractional factorial design.	07
OR	
Q.4 (a) Elaborate Fault tree analysis- FTA	03
(b) Explain 5's Principle in context to your institute workshop.	04
(c) Explain 7 Quality control tools with its advantages.	07
Q.5 (a) Explain Quality Circle with its advantages.	03
(b) Describe Quality function Deployment with a neat sketch.	04
(c) Write short notes on Total quality control	07
OR	
Q.5 (a) Describe about world class manufacturing.	03
(b) Explain Kaizen and poka - yoke.	04
(c) Elaborate FMEA with suitable examples.	07
