

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VII (NEW) EXAMINATION – WINTER 2023****Subject Code:3172013****Date:01-12-2023****Subject Name: Quality Assurance and Reliability****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.

		MARKS
Q.1	(a) Define the term Quality and explain with a suitable example.	03
	(b) Write short notes on Quality Circles.	04
	(c) Explain various types of sampling along with their importance, benefits and limitations.	07
Q.2	(a) Explain various frequency distribution curves with suitable examples.	03
	(b) Explain different stages in quality assurance.	04
	(c) Explain KAIZEN along with their advantages and applications.	07
	OR	
	(c) Explain the procedure for getting ISO 9001 Certification, along with three essential audit.	07
Q.3	(a) Define (i) TQM and (ii) Quality Assurance.	03
	(b) Describe the concept of variation in the context of manufacturing.	04
	(c) Explain DMAIC approach for Six Sigma with suitable examples.	07
	OR	
Q.3	(a) Define (i) Failure rate, (ii) Failure density, (iii) Probability of failure.	03
	(b) Write short notes on Zero defect program.	04
	(c) Explain PDCA cycle in details with suitable example.	07
Q.4	(a) Explain benefits of having ISO certification.	03
	(b) Write short notes on the elements of TQM.	04
	(c) Explain Bathtub curve and give advantages, limitations and applications.	07
	OR	
Q.4	(a) Define Multiplication rule.	03
	(b) Define the role of customer in TQM.	04
	(c) Write a short note on element redundancy, unit redundancy and standby redundancy.	07
Q.5	(a) Explain fundamentals of reliability engineering.	03
	(b) Explain the characteristics of p charts and c charts.	04
	(c) Explain reliability of series and parallel connected systems with suitable examples.	07
	OR	
Q.5	(a) What are the characteristics and uses of normal distribution curves?	03
	(b) Briefly explain the concept of JIT with a suitable example.	04
	(c) Explain Deming's 14 points philosophy of TQM.	07
