Seat No.: _____ Enrolment No.

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–VII (NEW) EXAMINATION – WINTER 2018

Subject Code: 2173407 **Date: 15/11/2018**

Subject Name: Quality & 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.**

Q.1	**(a)**	Enlist the principles of TQM. What are the barriers to the implementation of TQM in an organization?	**07**
	(b)	Give any two definitions of quality.	**04**
	(c)	Explain: Kaizen philosophy.	**03**
Q.2	**(a)**	Define the term Reliability with suitable example.	**03**
	(b)	Define quality circles? Discuss organization structure of quality circle.	**04**
	(c)	Discuss 5-S for house keeping with suitable example and explain its role in improving quality and productivity.	**07**
		OR	
	(c)	Explain following quality control tools in brief; (i) Pareto diagram and (ii) Ishikawa diagram	**07**
Q.3	**(a)**	Discuss benefits of becoming ISO 9000 certified company.	**03**
	(b)	Write short note on KANBAN system.	**04**
	(c)	Explain the concept of ISO 14000 with its benefits and importance.	**07**
		OR	
Q.3	**(a)**	What is Kaizen philosophy?	**03**
	(b)	Enlist 7 basic tools of quality control	**04**
	(c)	Define FMEA. Explain how it helps in ensuring quality of a product. Draw a typical format of FMEA and explain its elements in brief.	**07**
Q.4	**(a)**	Write short note on “Discrete and continuous distribution”	**03**
	(b)	Discuss Taguchi Quality Loss Function	**04**
	(c)	Briefly explain Six Sigma methodology. Why manufacturing industries should implement Six sigma?	**07**
		OR	
Q.4	**(a)**	Explain Benchmarking.	**03**
	(b)	Explain ‘Autonomous Maintenance’.	**04**
	(c)	What is Probability? Explain fundamental laws of probability.	**07**
Q.5	**(a)**	What is “Lean Manufacturing”	**03**
	(b)	Draw and explain bathtub curve used in reliability engineering.	**04**
	(c)	What is Concurrent Engineering? Explain need of Concurrent Engineering	**07**
		OR	
Q.5	**(a)**	How Quality Function Deployment is useful for quality improvement?	**03**
	(b)	Write shot note on “Just In Time (JIT)”	**04**
	(c)	Define the following terms: Reliability, Failure Density, Mean Time To Failure(MTTF), Mean Time Between Failure(MTBF) and Mean Time To Repair (MTTR).	**07**

****