GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER– VII (New) EXAMINATION – WINTER 2019

Subject Code: 2173407   **Date: 23/11/2019**

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.**

			MARKS
Q.1	(a)	How do you define quality and list out tools of quality management?	03
	(b)	Why management of quality is necessary in industry?	04
	(c)	Explain TQM frame work based on Deming, Juran and Crosby.	07
Q.2	(a)	What are the fundamentals of reliability engineering?	03
	(b)	Explain failure data analysis and failure rate.	04
	(c)	Explain reliability engineering and bath curve concept in it.	07
		OR	
		Explain following terms.	
	(c)	Reliability, Failure Density, Mean Time To Failure(MTTF), Mean Time Between Failure(MTBF) and Mean Time To Repair (MTTR).	07
Q.3	(a)	Explain auditing in quality management.	03
	(b)	Explain implementation of TQM in manufacturing and service sector.	04
	(c)	Explain standardization of quality system with ISO 9000 and ISO 9000-2000.	07
		OR	
Q.3	(a)	What is Tero technology? Explain in brief.	03
	(b)	Explain autonomous maintenance.	04
	(c)	Briefly explain Six Sigma methodology. Why manufacturing industries should implement Six sigma?	07
Q.4	(a)	Write in short about aspects of continuous process improvement?	03
	(b)	Enlist TQM principals pertaining to leadership, quality and customer.	04
	(c)	Explain in detail '5s' technique.	07
		OR	
Q.4	(a)	What is performance appraisal and why it is required in TQM.	03
	(b)	Why PDSA cycles used? Explain any one in brief.	04
	(c)	Why KAIZEN is used in TQM and explain its working method.	07
Q.5	(a)	Enlist seven basic TQM tools of quality control.	03
	(b)	Explain stages of Failure Mode and Effects Analysis (FMEA).	04
	(c)	What is bench marking? Explain why it needed in service sector.	07
		OR	
Q.5	(a)	Explain effect of cost on quality based on TPM concept.	03
	(b)	What is lean manufacturing and explain it?	04
	(c)	Explain in brief Taguchi method for measuring quality improvement.	07

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