GUJARAT TECHNOLOGICAL UNIVERSITY

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

Subject Code: 171906   **Date: 15/11/2018**

Subject Name: Quality And 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)**	Give any two definitions of quality. Enlist the various dimensions of quality and explain any two in detail.	**07**
	(b)	Explain 7 QC tools with one example of each.	**07**
Q.2	**(a)**	Write short note on KAIZEN	**07**
	(b)	What is Design of experiments (DOE)? What are the components and benefits of DOE?	**07**
		OR	
	(b)	Explain 5S with one example of each.	**07**
Q.3	**(a)**	Explain the basic concept, scope and applicability of QS 9000 certification.	**07**
	(b)	Explain Failure Mode and Effect analysis (FMEA)	**07**
		OR	
Q.3	**(a)**	Discuss the five major elements of environment management system (ISO 14001).	**07**
	(b)	Write a short note on Total Productive Maintenance	**07**
Q.4	**(a)**	Briefly explain the concepts of Lean and Agile Manufacturing. Discuss the advantages offered by these systems to the industries.	**07**
	(b)	Explain the working of a typical KANBAN system with the help of neat diagram	**07**
		OR	
Q.4	**(a)**	What do you understand by the word – Robust Design? How Taguchi Techniques helps achieving robust design of a product?	**07**
	(b)	Define benchmarking along with its three major types. Also discuss the benchmarking process cycle in detail.	**07**
Q.5	**(a)**	Write short note on JIT production system.	**07**
	(b)	Define failure rate, mean time between failure (MTBF), mean time to repair (MTTR) and Reliability with one example	**07**
		OR	
Q.5	**(a)**	Explain Reliability in terms of Hazard rate and failure density, Conditional probability and multiplication rules	**07**
	(b)	Explain Concurrent Engineering list out its merits and demerits	**07**

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