GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER–VII (OLD) - EXAMINATION – SUMMER 2017

Subject Code: 171906   **Date: 29/04/2017**
Subject Name: Quality and Reliability Engineering (Department Elective - I)
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.

Q.1	**(a)**	Define the term Quality. Explain different dimensions of quality	**07**
	(b)	Discuss TQM implementation and limitations.	**07**
Q.2	**(a)**	Explain the concept of Quality Circles. Discuss advantages and disadvantages of Quality Circles.	**07**
	(b)	Define Prevention, Appraisal, Internal failure and External failure terms related to the cost of quality.	**07**
		OR	
	(b)	Explain PDCA cycle in details with suitable example.	**07**
Q.3	**(a)**	Explain the basic concept of ISO 9000 certification. What are the advantages and implementation barriers of the same?	**07**
	(b)	Write short note on JIT production system.	**07**
		OR	
Q.3	**(a)**	Explain ISO 14000 with its benefits and barriers.	**07**
	(b)	Explain each phase of 5S technique. List the advantages offered by 5S technique.	**07**
Q.4	**(a)**	What is Design of Experiments (DOE)? What are the components and benefits of DOE?	**07**
	(b)	What is Failure Mode and Effect Analysis (FMEA)? Discuss various stages of FMEA.	**07**
		OR	
Q.4	**(a)**	What is TPM? Discuss its objectives and benefits of implementing TPM in an industry.	**07**
	(b)	What is Probability? Explain fundamental laws of probability.	**07**
Q.5	**(a)**	What is Six Sigma? Discuss the concepts, feature and benefits of Six Sigma to an organization.	**07**
	(b)	Define the following terms: Reliability, Failure Density, Mean Time To Failure(MTTF), Mean Time Between Failure(MTBF) and Mean Time To Repair (MTTR).	**07**
		OR	
Q.5	**(a)**	Write short note on (I) Lean Manufacturing (II) Business Process Re-engineering	**07**
	(b)	What is Concurrent Engineering? Explain need of Concurrent Engineering.	**07**

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