

**GUJARAT TECHNOLOGICAL UNIVERSITY****BE - SEMESTER-VII(NEW) EXAMINATION – SUMMER 2019****Subject Code:2173407****Date:10/05/2019****Subject Name:Quality & Reliability Engineering****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.

MARKS

<b>Q.1</b>	(a) Define Quality Control. What are the objectives of quality control?	<b>03</b>
	(b) Suggest the various dimensions, customers are influenced by in determining quality levels.	<b>04</b>
	(c) Explain PDCA cycle in details.	<b>07</b>
<b>Q.2</b>	(a) Define Reliability. How it is associated with quality?	<b>03</b>
	(b) What is Quality Circle?	<b>04</b>
	(c) Discuss 5-S campaign as Kaizen Technique.	<b>07</b>
<b>OR</b>		
	(c) Define Prevention, Appraisal, Internal failure and External failure terms related to the cost of quality.	<b>07</b>
<b>Q.3</b>	(a) Explain in short term “Bench Marking”.	<b>03</b>
	(b) Write short note on KANBAN system.	<b>04</b>
	(c) Write short note on JIT production system.	<b>07</b>
<b>OR</b>		
<b>Q.3</b>	(a) Discuss benefits of becoming ISO 9000 certified company.	<b>03</b>
	(b) Give overview of ISO 9000 series of standards.	<b>04</b>
	(c) Write short note on ISO 14001 an environmental management system.	<b>07</b>
<b>Q.4</b>	(a) Explain in short term “Cost of Quality” (COQ) system	<b>03</b>
	(b) Discuss Taguchi Quality Loss Function.	<b>04</b>
	(c) Discuss Advantages and Limitation of Six Sigma	<b>07</b>
<b>OR</b>		
<b>Q.4</b>	(a) Define DOE and enlist the components of DOE.	<b>03</b>
	(b) Define QFD and state its benefits.	<b>04</b>
	(c) What are the objectives of Total Productive Maintenance (TPM)? Briefly explain the eight pillars of TPM.	<b>07</b>
<b>Q.5</b>	(a) Draw and explain the Bathtub curve.	<b>03</b>
	(b) What is Six Sigma? Discuss the concepts.	<b>04</b>
	(c) Define MTBF and MTTR and explain their significance in reliability calculations of any system.	<b>07</b>
<b>OR</b>		
<b>Q.5</b>	(a) Explain in short term “Lean Manufacturing”	<b>03</b>
	(b) Explain Venn diagram of probability.	<b>04</b>
	(c) Discuss Reliability in terms of Hazard rate and failure density.	<b>07</b>

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