Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

ME – SEMESTER IV (NEW) – • EXAMINATION – SUMMER 2016

Subject Code: 2740804 **Date:04/05/2016**

Subject Name: QUALITY CONTROL AND RELIABILITY

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)**	What is meant by the term "SQC"? Describe the benefits and limitations of SQC.	**07**
	(b)	Define "Control Chart". Describe the method of constructing X-bar and R chart and explain how these charts help in determining lack of control.	**07**
Q.2	**(a)**	What is cost of quality? Which are the costs included in cost of quality? Explain types of cost of quality.	**07**
	(b)	Draw the OC curve with nomenclature and explain (a) Consumer's Risk (b) Producer's Risk (c) Acceptance Quality Level (AQL) (d) LTPD in detail	**07**
		OR	
	(b)	What is Acceptance Sampling? State and explain the advantages and limitations of acceptance sampling over 100% inspection.	**07**
Q.3	**(a)**	Describe in detail the "House of Quality" as applied in QFD.	**07**
	(b)	Describe in detail the concept of "Concurrent Engineering".	**07**
		OR	
Q.3	**(a)**	What is Lean Manufacturing? Describe the lean concept in detail.	**07**
	(b)	Define "Reliability". Explain in detail the concept of Reliability.	**07**
Q.4	**(a)**	What is FMEA? Describe in detail the concept of FMEA.	**07**
	(b)	Explain how "DMAIC" is a Six Sigma Process improvement model?	**07**
		OR	
Q.4	**(a)**	Describe the seven wastes of production eliminated by lean manufacturing.	**07**
	(b)	Discuss the fundamental factors affecting the quality.	**07**
Q.5	**(a)**	Differentiate between Quality Control and Reliability.	**07**
	(b)	How is reliability calculated when (a) Components are connected in parallel (b) Components are connected in series (c) Mixed system.	**07**
		OR	
Q.5	**(a)**	Explain the need of a reliable product.	**07**
	(b)	Define "Maintainability". State the relation between maintenance & reliability.	**07**

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