

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**
