

**GUJARAT TECHNOLOGICAL UNIVERSITY**  
**BE - SEMESTER-VII(NEW) • EXAMINATION – WINTER 2016**

**Subject Code:2173407****Date:18/11/2016****Subject Name:Quality & Reliability Engineering****Time:10.30 AM to 1.00 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 Quality? Discuss the benefits of Quality Management. **07**
- (b) Explain PDCA cycle in details. **07**
- Q.2** (a) Write short note on Total Employee Involvement. **07**
- (b) Enlist Japanese 5-S and describe its objectives and advantages. **07**
- OR**
- (b) What is Kaizen philosophy? How does it improve the quality? **07**
- Q.3** (a) Define FMEA. Explain how it helps in ensuring quality of a product. Draw a typical format of FMEA and explain its elements in brief. **07**
- (b) What is Six Sigma? Explain the concepts, feature and benefits. **07**
- OR**
- Q.3** (a) What are the advantages of using benchmarking as an improvement tool? **07**
- (b) Explain the concept of Quality Circles. List advantages and drawbacks of Quality Circles. **07**
- Q.4** (a) Enlist the principles of TQM. What are the barriers to the implementation of TQM in an organization? **07**
- (b) Define QFD and state its benefits. Explain house of quality. **07**
- OR**
- Q.4** (a) Explain the basic concept of ISO 9000 certification. What are the advantages and implementation barriers of the same? **07**
- (b) Discuss the clause “Management responsibility” with respect to ISO9001: 2000. **07**
- Q.5** (a) Define balancing of Preventive maintenance and Breakdown maintenance. **07**
- (b) Define MTBF and MTTR and explain their significance in reliability calculations of any system. **07**

**OR**

**Q.5 (a)** Define Reliability and discuss about Failure Rate Analysis.

**07**

**(b)** Explain Reliability Centered Maintenance (RCM).

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