

GUJARAT TECHNOLOGICAL UNIVERSITY
BE – 7th SEMESTER (NEW SYLLABUS) EXAMINATION- SUMMER 2018

Subject Code: 2173407**Date: 28-04-2018****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.

- Q.1** (a) Define: Quality, Quality Control, and Quality Assurance. **03**
 (b) Explain: Kaizen philosophy. **04**
 (c) Which are eight dimensions of quality. Briefly explain them. **07**
- Q.2** (a) Define Reliability. How it is associated with quality? **03**
 (b) Define and explain: Bench marking process and reasons to bench mark. **04**
 (c) Explain given TQM principles: (i) Customer orientation (ii) Employee empowerment **07**
- OR**
- (c) Explain following statements in your words. **07**
 1. Quality is everyone's responsibility. – Edwards Deming
 2. Quality has to be caused, not controlled. – Phil Crosby
- Q.3** (a) What are the benefits of ISO 9000? **03**
 (b) Briefly explain the concept of ISO 9000. **04**
 (c) Explain PDCA cycle with activities to be done in each phase. **07**
- OR**
- Q.3** (a) Enlist 7 basic tools of quality control. **03**
 (b) Explain any two basic quality control tools. **04**
 (c) Explain the concept of ISO 14000 with its benefits and importance. **07**
- Q.4** (a) Define TPM. Which are the 8 pillars of TPM? **03**
 (b) Explain 'Autonomous Maintenance'. **04**
 (c) Explain: Quality circle framework with style of working and enlist benefits. **07**
- OR**
- Q.4** (a) Explain Cost of Quality concept. **03**
 (b) Explain with an example about four costs involved in Cost of Quality. **04**
 (c) Briefly explain Six Sigma methodology. Why manufacturing industries should implement Six sigma? **07**
- Q.5** (a) How Quality Function Deployment is useful for quality improvement? **03**
 (b) Draw structure of house of quality and mention type of data to be filled in format. **04**
 (c) Define: Preventive maintenance, predictive maintenance and breakdown maintenance. Compare their significant characteristics. **07**
- OR**
- Q.5** (a) Define and explain: Failure rate. **03**
 (b) Brief about these terminologies: (i) Mean time to failure (MTTF); (ii) Mean time between failure, (MTBF) and (iii) Mean time to repair (MTTR). **04**
 (c) Draw and explain bathtub curve used in reliability engineering. Explain three phases of the curve. **07**
