

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VII (NEW) EXAMINATION – WINTER 2021****Subject Code:3171929****Date:17/12/2021****Subject Name:Quality and Reliability Engineering****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.
4. Simple and non-programmable scientific calculators are allowed.

- Q.1** (a) Define Quality as per the view of different Quality gurus. **03**
 (b) Discuss about Quality Circle. **04**
 (c) Describe “5-S Practices “ in concern to your institute’s workshop **07**
- Q.2** (a) Explain Total Quality Control (TQC) . **03**
 (b) Express Quality function deployment (QFD) in your words. **04**
 (c) Interpret Failure mode and effect analysis [FMEA] along with suitable diagram. **07**
- OR**
- (c) Discuss about TQM Implementation process along with its limitations. **07**
- Q.3** (a) Explain JIT Production system. **03**
 (b) Illustrate Total productive maintenance [TPM] in context to mechanical industries. **04**
 (c) Distinguish about ISO: 9000 methods and its implementation in industry. **07**
- OR**
- Q.3** (a) List out 7 new Quality improvement tools. **03**
 (b) Explain Fault tree analysis [FTA]. **04**
 (c) Distinguish the ISO: 14000 and QS 9000 process for manufacturing unit. **07**
- Q.4** (a) Classify Design of experiment process. **03**
 (b) Discuss about Taguchi approach in context to DOE **04**
 (c) Distinguish full factorial and fractional factorial design of experiment. **07**
- OR**
- Q.4** (a) List out various steps of Experimental design. **03**
 (b) Explain about robust experimental design with suitable example. **04**
 (c) Describe about Lean and Agile manufacturing with its advantages and limitations. **07**
- Q.5** (a) Classify Cost of Quality and explain any one. **03**
 (b) Explain Kaizen and Kanban production system. **04**
 (c) Analyze Six sigma process and its principle. **07**
- OR**
- Q.5** (a) Define : Skewness and kurtosis of life dispersion **03**
 (b) Discriminate between cumulative function and reliability function. **04**
 (c) Analyze Reliability of repairable system. **07**
