DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY,
LONERE – RAIGAD – 402 103
Winter Semester Examination – December – 2017

Branch: M.Tech. (Mechanical Production Engg. / Manufacturing Engg.) **Semester: I**

Subject with Subject Code: Quality Control and Reliability [MMF104H] **Marks: 60**

Date: 18 / 12 / 2017 **Time: 3 Hrs.**

Instructions to the Students

1. Each question carries 12 marks.
2. Attempt any five questions of the following.
3. Illustrate your answers with neat sketches, diagram etc., wherever necessary.
4. If some part or parameter is noticed to be missing, you may appropriately assume it and should mention it clearly.

(Marks)

Q.1. (a) Define TQM?. Enlist and explain in detail the six basic concepts of TQM. **[4]**

(b) How the Juran's Tribology approach for managing quality is carried out? Explain in details. **[4]**

(c) Explain in detail Philip B. Crosby's four absolutes of quality management. **[4]**

Q.2. (a) Enlist and explain Deming's Philosophy of 14 points principles. **[6]**

(b) Explain in detail Philip B. Crosby's fourteen steps for quality improvement. **[6]**

Q.3. (a) Explain the following terms: (i) Measures of central tendency, (ii) Measures of dispersion **[6]**

(b) Determine the average, median, mode, range and standard deviation for the height of seven people. Data are 1.83, 1.91, 1.78, 1.80, 1.83, 1.85, 1.87 meters **[6]**

Q.4. (a) Explain QFD in detail. What are the benefits of QFD. **[6]**

(b) Write short notes on: (i) Weibull Analysis, (ii) Six Sigma **[6]**

Q.5. (a) Explain in detail Taguchi Design Approaches. **[6]**

(b) **[3]**

(i) Determine the S/N ratio for a process that has a temperature average of 21°C and a sample standard deviation of 2°C for four observations.

(ii) A head- stuffing procedure is comparing the caloric content of the original process with a new process. Which has the lower content and What is the difference? **[3]**

Original	130	135	128	127
Light	115	112	120	113

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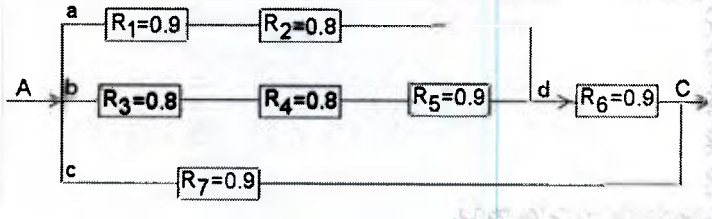
Q.6. (a) Define reliability? Explain in detail about bath tub curve used in reliability engineering? **[6]**

(b) Calculate the system reliability for the given complex series/parallel system. **[6]**



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