Total No. of Questions :8] *[Total No. of Printed Pages :2*

Roll No .....

MMIE/MMPD-202

M.E./M.Tech., II Semester

Examination, December 2016

Reliability Engineering and Quality Management

Time : Three Hours

Maximum Marks : 70

Note : i) Attempt any five questions.
ii) All questions carry equal marks.

1. A pressure transducer failure follows the Weibull distribution. The scale parameter and the shape parameter are estimated as 500 hours and 0.6 respectively. What is the reliability after 600 hours of operation? Determine the MTTF for the transducer. 14

2. A washing machine reported 6 failures during a period of 1.500 hours of operation. The average repair time per failure is 1 hour. Determine the failure rate λ, MTTF and MTBF. 14

3. a) What are the important elements of the quality assurance system? 7
   b) Explain briefly Taguchi loss function. 7

4. a) Explain the procedure to make a reliable statistical process control system. 7
   b) What are control charts for variables and where it can be used? 7

5. a) Define process average, average range for $\bar{X}$ chart. 7
   b) What is use of p and np charts? 7

6. a) Define acceptance sampling. Explain what are important aspects of sampling. 7
   b) Explain operating characteristic curve for an ideal sampling plan. 7

7. a) What are contributions of Dr J.M. Juran about quality? 7
   b) Discuss Crosby's absolutes of quality management. 7

8. a) What are steps of waste elimination? 7
   b) What are the advantages of TQM? 7

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