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BB-97

M. Tech. EXAMINATION, May 2017

(Second Semester)

(B. Scheme) (Main & Re-appear)

(ME)

MEI-520B

RELIABILITY AND MAINTENANCE ENGINEERING

Time : 3 *Hours*] [*Maximum Marks :* 75

Before answering the question-paper candidates should ensure that they have been supplied to correct and complete question-paper. No complaint, in this regard, will be entertained after the examination.

Note : Attempt *Five* questions in all, selecting at least *one* question from each Unit. All questions carry equal marks.

Unit I

1. Define the following :

(a) Availability **3**

(b) Failure Rate **3**

(c) Mean Time to Repair **3**

(d) Repair Rate **3**

(e) Bath Tub Curve. **3**

2. Describe failure data analysis with suitable example. **15**

Unit II

3. (a) Define Reliability and maintenance. Describe the use of Pareto analysis for reliability improvement. **7**

(b) Ten identical components are connected in parallel to achieve system reliability as 0.9. Determine additional number of components to be added in parallel to increase the reliability to 0.95. **8**

4. (a) Explain Fault Tress analysis with an example. **8**

(b) Describe Design for Reliability. **7**

Unit III

5. (a) What are different maintenance objectives and functions ? **7**

(b) Discuss inspection, also explain inspection intervals, inspection reports and card history system. **8**

6. (a) Discuss various types of maintenance organizations are in use in Indian industries. **10**

(b) Discuss vibration analysis for maintenance. **5**

Unit IV

7. Discuss the different stages involved in implementation of TPM. **15**

8. Explain Condition Monitoring. Give the types of condition monitoring used in Indian industries. **15**