

Section D

7. Explain in detail the “Pillars of Total Productive Maintenance (TPM)” ? **15**
8. Explain different types of Ultrasonic testing techniques and write their applications and advantages. **15**

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Roll No.

BB-97

M. Tech. EXAMINATION, Dec. 2018

(Second Semester)

(B. Scheme) (Re-appear Only)

(ME)

MEI520B

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 Section. All questions carry equal marks. Use of statistical tables is permitted. Assume the missing data, if any, suitably.

M-BB-97

4

10

(3-31/14)M-BB-97

P.T.O.

Section A

1. What is the significance of the Bathtub curve in reliability ? Give an example of an item with a failure rate in each phase. **15**
2. Assume that two independent and identical machines form a parallel system. Each machine's time to failure are exponentially distributed with a mean time to failure of 200 h. The periodic preventive maintenance (PM) is performed after every 100 h. Calculate the system mean time to failure with and without the performance of periodic PM. **15**

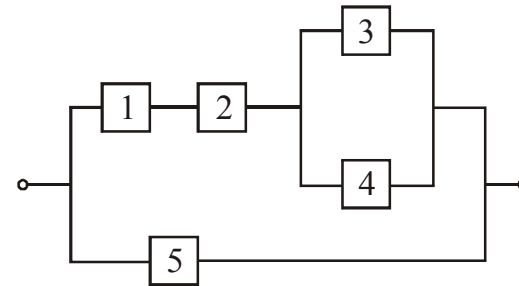
Section B

3. What is the redundancy and how can it improve product reliability ? **15**

M-BB-97

2

4. Derive a general expression for the unreliability of the model shown in Figure and hence evaluate the unreliability of the system if all components have a reliability of 0.8. **15**



Section C

5. Explain the major functions of the maintenance department in an organization along with its objectives. **15**
6. Differentiate between preventive and corrective maintenance. How will you decide the level of preventive maintenance that may be needed to keep the overall cost of maintenance in mind ? **15**

(3-31/15)M-BB-97

3

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