

16213(D) - 0 DEC 2016

B. Tech 7th Semester Examination

Maintenance and Reliability (NS)

ME-411(c)

Time : 3 Hours

Max. Marks : 100

The candidates shall limit their answers precisely within the answer-book (40 pages) issued to them and no supplementary/continuation sheet will be issued.

Note : Attempt Five questions in all, selecting one question from each sections A, B, C and D. Section E is compulsory. Assume missing data suitably, if any. Use of non-programmable calculator is allowed.

SECTION - A

1. (a) Define maintenance and explain its classifications. (10)
(b) What should be the objectives of maintenance management for successful working of a maintenance department? (10)
2. Explain:
(a) Maintenance evolution phases. (10)
(b) Elements of good maintenance program. (10)

SECTION - B

3. (a) Differentiate corrective and preventive maintenance. (10)
(b) Describe the condition-monitoring techniques used in maintenance practice. (10)
4. (a) Define TPM (Total productive maintenance). Enlist main steps involved in successful TPM implementation in a plant. (10)
(b) Define CBM (Condition based monitoring). Explain the main stages of Condition based Monitoring. (10)

SECTION - C

5. (a) Mention various Non-Destructive testing NDT techniques. Explain any one of them. (10)
(b) What is the importance of manpower allocation in the context of maintenance function? (10)
6. (a) Give the industrial applications of NDT techniques. (10)
(b) How does the long range planning help the maintenance function effectively? Explain. (10)

SECTION - D

7. (a) Define bathtub curve in practice treating more than one failure type by a single classification. (10)
(b) Explain Pareto Diagram by taking a suitable example. (10)
8. (a) Explain how the reliability data helps in performance of the maintenance function. (10)
(b) Explain Ishikawa Diagram by a suitable example. (10)

SECTION - E

9. Answer all questions:
 - (i) What is condition based monitoring methods?
 - (ii) What is a maintenance plan? Give an example.
 - (iii) Define reliability? Explain its present industrial scenario.
 - (iv) Write a short note on planned preventive maintenance.
 - (v) Describe the benefit which can be derived from maintenance evaluation.
 - (vi) What are the pillars of TPM?
 - (vii) Give the applications of reliability.
 - (viii) Develop a list of commercially available condition-monitoring instruments.
 - (ix) Give the steps in implementation of condition based maintenance.
 - (x) Write the procedure for ultrasonic testing. (10×2=20)