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B.TECH.

THEORY EXAMINATION (SEM–VIII) 2016-17

MAINTENANCE ENGINEERING & MANAGEMENT

Time : 3 Hours *Max. Marks : 100*

Note : *Be precise in your answer. In case of numerical problem assume data wherever not provided.*

SECTION – A

1. Attempt the following: **10 x 2 = 20**

(a) Define the maintenance.

(b) What is the preventive maintenance?

(c) What is the corrective maintenance?

(d) What is meant by Redundancy?

(e) Differentiate between adhesive and adhesive wear.

(f) What is the splash circulating lubricant?

(g) What is meant by Availability?

(h) What is the maintainability?

(i) What is the MTTF?

(j) Write short note on hazard model.

SECTION – B

2. Attempt any five of the following questions: **5 x 10 = 50**

(a) What do you understand by break down maintenance? Discuss the various features of breakdown maintenance management?

(b) What do you understand by the term 'Total Productive Maintenance'? What are the main features of Total Productive Maintenance?

(c) A truck owner found from his past record that the maintenance cost was Rs. 200 for the first year and then increased by Rs. 2000 every year. The cost of truck A is Rs. 9000. Truck B type cost Rs. 10000. Annual maintenance cost is Rs. 400 and increase by Rs. 800 every year. Determine the best age at which to replace the trucks.

(d) How the cost analysis of a typical maintenance department is carried out?

(e) Explain the operating life cycle taking the example of radio and transistor.

(f) Does maintenance management differ from Production management? If yes, in what way?

(g) A system is composed of 5 identical independent elements in parallel. What should be the reliability of each element to achieve a system reliability of 0.96?

(h) Explain PERT and its importance in network analysis. What are the requirements for application of PERT techniques?

SECTION – C

Attempt any two of the following questions: **2 x 15 = 30**

3. Suppose a special purpose type of light bulb never lasts longer than two weeks. There is a chance of 0.3 that a bulb will fail at the end of the next week. Initially there are 100 new bulbs. The cost per bulb for individual replacement is Re. 1 and the cost per bulb for a group replacement is Re. 0.50. Which is the cheapest to replace all bulbs among given options?

(i) Initially, (ii) Every week,

(iii) Every second week (iv) Every third week?

4. In a computerized inventory system, what are the typical data files and what kind of output reports generated?

5. Explain how the theory of replacement is used in the following problems:
   (i) Replacement of items whose maintenance cost varies with time?
   (ii) Replacement of items that completely fail?