



# CBCS SCHEME

15MA553

## Fifth Semester B.E. Degree Examination, Dec.2019/Jan.2020 Maintenance Engineering

Time: 3 hrs.

Max. Marks: 80

Note: Answer any FIVE full questions, choosing ONE full question from each module.

### Module-1

- 1 a. Define maintenance. List the objectives of maintenance and explain briefly. (05 Marks)
- b. What are the importance of maintenance of a plant? (05 Marks)
- c. List at least eight functions of maintenance. (06 Marks)

OR

- 2 a. Briefly explain : (i) Break down maintenance  
(ii) Preventive maintenance. (08 Marks)
- b. Write a note on conditional monitoring. How is conditional monitoring categorized? (08 Marks)

### Module-2

- 3 a. Briefly explain Repair cycle and repair complexity. (08 Marks)
- b. Explain how replacement analysis is performed. (08 Marks)

OR

- 4 A large firm user of 100 computer terminals which breakdown probability distribution as follows: (Table 4)

Failure free months	1	2	3	4	5	6	7	8
Probability of breakdown	0.3	0.1	0.05	0.05	0.05	0.05	0.1	0.3

Average cost per terminal repair Rs.800/- while preventive maintenance amounts to Rs.200/- per machine. Assume no cost is associated with terminal down time,

- (i) Calculate cost of maintenance policy based only as repairs.
- (ii) Calculate cost of alternate maintenance policy.
- (iii) Select minimum cost policy. (16 Marks)

**Module-3**

- 5 a. What is failure? What are the causes of machine failure? (08 Marks)  
b. Write a brief note on objectives and challenges in performance evaluation. (08 Marks)

**OR**

- 6 a. Write a brief note on spare parts control. (08 Marks)  
b. Briefly distinguish between short range and long range planning. (08 Marks)

**Module-4**

- 7 a. With an example data sheet, explain the importance of economics of accidents. (08 Marks)  
b. Briefly explain the sequence of investigations on accidents. (08 Marks)

**OR**

- 8 a. What are the precautionary measures to be taken when working on welding machines? (08 Marks)  
b. What are the safety standard to be followed in a plant for Good House Keeping? (08 Marks)

**Module-5**

- 9 a. What are the objectives of CMMS? (08 Marks)  
b. List and explain the benefits of using CMMS. (08 Marks)

**OR**

- 10 a. With a neat sketch, explain the Gravitational type dust collectors. (08 Marks)  
b. Write a note on vibration control and its techniques. (08 Marks)

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