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Question Paper Code : Q 2309

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2009.

Eighth Semester

(Regulation 2004)

Mechanical Engineering

ME 1019 — MAINTENANCE ENGINEERING

(Common to Production Engineering)

(Common to B.E. (Part-Time) Seventh Semester Regulation 2005)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Define reliability.
2. What is Mean time between failures (MTBF)?
3. List out the objectives of corrective maintenance.
4. What is meant by predictive maintenance?
5. What are the three types of condition monitoring?
6. State the various methods of corrosion monitoring techniques.
7. Differentiate between Fault tree diagrams and Reliability block diagrams.
8. List the design consideration of guide ways.
9. State the objectives of CMMS.
10. State the benefits of keeping equipment records.

PART B — (5 × 16 = 80 marks)

11. (a) (i) State the various objectives of maintenance planning. (8)
 (ii) Derive an expression for determining the Mean time to failure (MTTF). (8)

Or

- (b) (i) State the benefits of a sound maintenance management system. (8)
 (ii) State the steps necessary to reduce the maintenance cost in an industry. (8)
12. (a) (i) Compare TQM and TPM. (4)
 (ii) Discuss the various stages involved in implementation of TPM. (12)

Or

- (b) (i) With a suitable example, illustrate repair cycle. (8)
 (ii) Explain the importance of lubricating of moving parts of industrial machineries. (8)
13. (a) (i) Explain how cost comparison is done in condition monitoring. (8)
 (ii) Explain on-load and off-load testing used in condition monitoring with its flow diagram. (8)

Or

- (b) (i) Discuss how infrared thermo graphy inspection is more advantages over other temperature monitoring techniques. (8)
 (ii) How the monitoring of wear-debris analysis in the lube oil is achieved? (8)
14. (a) (i) List the possible causes of failure of bearings and explain how to overcome them. (6)
 (ii) With the aid of suitable sketches, describe the method of repairing cracks in Machine bed by
 (1) Riveting
 (2) Hot clamping. (10)

Or

- (b) Briefly discuss on following as regard to bearings
 (i) Failures
 (ii) Characterization of failures
 (iii) Causes
 (iv) Solutions. (4 × 4 = 16)

15. (a) (i) Explain the work order flow diagram. (8)
(ii) What is job card system? State its benefits. (8)

Or

- (b) (i) Explain the preventive maintenance strategies for cranes. (8)
(ii) Explain about maintenance monitoring, execution and control. (8)
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