

**Total No. of Pages : 02**

**Total No. of Questions : 09**

**B.Tech.(ME) (E-I 2012 Onwards) (Sem.-6)**  
**MAINTENANCE & RELIABILITY ENGG.**  
**Subject Code : DE/ME-2.6**  
**M.Code : 71258**

**Time : 3 Hrs.**

**Max. Marks : 60**

**INSTRUCTION TO CANDIDATES :**

1. **SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.**
2. **SECTION-B contains FIVE questions carrying FIVE marks each and students has to attempt any FOUR questions.**
3. **SECTION-C contains THREE questions carrying TEN marks each and students has to attempt any TWO questions.**

## SECTION-A

**1. Answer briefly :**

- a) What is the predictive maintenance?
- b) Differentiate between MTTR and MTBF.
- c) What is the preventive maintenance?
- d) What is the need of maintenance record keeping?
- e) State the objectives of TPM.
- f) List the design consideration of guide ways.
- g) State the benefits of keeping equipment records.
- h) Define “Maintenance”.
- i) Define “Reliability”.
- j) Differentiate between Reliability and Maintainability.

### SECTION-B

2. Discuss the need of maintenance planning.
3. Derive an expression for determining the-mean time to failure (MTTF)
4. What are the different costs of machine breakdown, discuss in detail?
5. Explain the terms, availability, inherent availability, achieved availability and operational availability.
6. What are the different conditions based monitoring techniques, discuss them briefly?

### SECTION-C

7. How to develop preventive maintenance schedule and. also develop the fault tree of gear train system?
8. List the possible causes of failure of bearing and explain how to overcome them.
9. Write short notes on :
  - a) Chemical control of corrosion
  - b) Total productive maintenance

**NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.**