

**DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/
MANAGEMENT/COMMERCIAL PRACTICE, APRIL – 2023**

MAINTENANCE ENGINEERING

[Maximum Marks: 100]

[Time: 3 Hours]

PART-A

[Maximum Marks: 10]

I. (Answer *all* questions in one or two sentences. Each question carries 2 marks)

1. List any four types of maintenance.
2. Explain failure density.
3. List the benefits of vibration monitoring.
4. What is job order?
5. Define Ferrography.

(5 x 2 = 10)

PART-B

[Maximum Marks: 30]

II. (Answer *any five* of the following questions. Each question carries 6 marks)

1. List benefits of sound maintenance system.
2. Explain Hydro dynamic method of lubrication with sketch.
3. Briefly explain MTBF and MTTR?
4. List the factors considered for evaluation of maintenance cost.
5. What is Wear Debris Analysis? Name any five methods for Wear Debris Analysis.
6. Explain types of unbalance in machines.
7. Explain liquid penetrant testing.

(5 x 6 = 30)

PART-C

[Maximum Marks: 60]

(Answer *one* full question from each Unit. Each full question carries 15 marks)

UNIT – I

- III. a. What are the benefits of lubrication? (8)
- b. Explain preventive maintenance. List its advantages and disadvantages. (7)

OR

- IV. a. Explain the basic principles of maintenance planning. (8)
- b. Explain TPM. Compare TPM with TQM. (7)

UNIT – II

- V. a. Explain equipment life cycle based on bath tub curve. (8)
- b. Explain different types of availability. (7)

OR

- VI. a. Explain series reliability model and parallel reliability model. (8)
- b. Explain Reliability Cost and Maintenance Cost. (7)

UNIT- III

- VII. a. Write short note on any four temperature monitoring techniques. (8)
- b. Explain machine vibration standard, severity chart. (7)

OR

- VIII. a. What are the causes of vibration? (8)
- b. Explain shock pulse method. (7)

UNIT - IV

- IX. a. Explain equipment record types and equipment record benefits. (8)
- b. Explain Ultrasonic Test with sketch. (7)

OR

- X. a. Write short notes on any four corrosion monitoring techniques. (8)
- b. Explain Radiography test with sketch. (7)
