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DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/MANAGEMENT/ COMMERCIAL PRACTICE, APRIL – 2021

MAINTENANCE ENGINEERING

[Maximum Marks: 75] [Time: 2.15 Hours]

PART-A

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

I. 1. List the pillars of TPM.

2. Define failure rate.

3. Define MTTR.

4. List the various causes of vibration.

5. Define ferrography. (3 x 2 = 6)

PART-B

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

II 1. State advantages and disadvantages of Preventive maintenance.

2. List the benefits of sound maintenance system.

3. Define reliability. What are the factors affecting reliability?

4. Explain unbalance caused for vibration.

5. Explain about vibration signature.

6. List the advantages of computerized maintenance system.

7. Explain about fault tree analysis and event tree analysis. (4 x 6 = 24)

PART-C

(Answer ***any of the three units*** from the following. Each full question carries 15 marks)

UNIT – I

III (a) What are the typical causes of equipment breakdown? (8)

(b) List the factors to be considered in maintenance planning. (7)

OR

IV (a) Illustrate repair cycle. (8)

(b) Explain extreme pressure lubrication and boundary lubrication. (7)

UNIT – II

V (a) In a process plant it is desired to have a reliability of at least 0.99 for a specified period of 600 hrs, for the successful operation of a machine. Calculate the mean life (MTBF) of the equipment. (8)

(b) Explain different types of availability. (7)

OR

VI (a) Three lamps are connected in parallel to produce light in a hall. Reliabilities are 0.93, 0.95, 0.97 respectively. Find the reliability of the lamp system. If they are connected in series determine the reliability. (8)

(b) Illustrate bath tub curve. (7)

UNIT- III

VII (a) Explain shock pulse method for condition monitoring. (8)

(b) Summarize the procedure adopted for vibration analysis. (7)

OR

VIII (a) Explain frequency domain analysis of vibration monitoring. (8)

(b) Write short notes on pistol thermometer and temperature sensitive types. (7)

UNIT - IV

IX (a) Explain electrical resistance method of corrosion monitoring. (8)

(b) Explain about maintenance strategies for forklifts. (7)

OR

X (a) Explain the procedure of liquid penetrant test. (8)

(b) Explain spectroscopic oil analysis programme. (7)
