MET-003

CERTIFICATE IN CONDITION MONITORING

(CCOMO)

Term-End Examination

June, 2023

MET-003 : CONDITION MONITORING AND MAINTENANCE

Time : 3 Hours　　　　　*Maximum Marks : 70*

Note : (*i*) *Answer any seven questions.*

(*ii*) *All questions carry equal marks.*

1. Explain the functions of plant engineering and management with a block diagram.　　10

2. (a) What do you understand by the term "Maintenance Planning" ? What are different phases involved in maintenance planning ?　　5

    (b) What are the various methods of maintenance ? Explain briefly any *one* method.　　5

3. (a) What is maintenance policy ? What are the various maintenance policies ? Explain any *one* briefly.   5

   (b) What are the bottlenecks you find while formulating the maintenance strategy ?   5

4. (a) What do you understand by Master Maintenance ? What is its significance in an industry ?   5

   (b) Define the term 'Spare Part'. Enumerate the features of spare parts inventory.   5

5. (a) What is codification ? What is its significance in maintenance spare parts management ? What are the advantages of codification ?   5

   (b) What are the various destructive tests ? Explain any *one* test.   5

6. (a) What is diagnostic maintenance ? Explain its features.   5

   (b) Explain the different steps to implement condition based monitoring.   5

7. (a) What are the basic information required for FMEA/ FMECA ?   5

   (b) What is damped free vibration ? Compare viscous damper with Coulomb's damper. 5

8. (a) Explain in brief machine life cycle–bath tub curve.   5

    (b) Explain the different costs involved in machine failure analysis.   5

9. The rotor of a turbocharger weighing 10 kg is keyed to a centre of a 25 mm diameter steel shaft. The span length of the shaft is 50 cm. Determine critical speed of the shaft and amplitude of the vibration of the rotor at a speed of 300 rpm. The eccentricity of mass is 0.015 mm. Assume $E = 2.0 \times 10^{11}$ Pa.   10

10. Write short notes on any *two* of the following :

                                                      5+5

    (a) Trend Analysis

    (b) TTT Plotting

    (c) Operating time and Down time

    (d) 5-3 frame for workplace organization

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