

**CERTIFICATE IN CONDITION
MONITORING
(CCOMO)**

**Term-End Examination
June, 2024**

**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. What are the **ten** different functions of plant engineering ? Explain any **five** of these functions. 10
2. (a) What are **five** different functions of decentralized plant maintenance group ? 5
(b) What is decentralization and its advantages. 5
3. (a) Distinguish between 'Break Down Maintenance' and 'Emergency Maintenance.' Mention any **five** points. 5

- (b) Mention any **five** maintenance strategies along with their central theme. 5
4. (a) Explain 'Relaxed Scheduling Policy' along with its *two* merits and *two* demerits. 5
- (b) In a repair shop there are three orders P, Q, R to repair and due dates are as follows : 5

Jobs	Repair Time	Due Date
P	10	18
Q	8	22
R	5	25

Prepare a sequence of repairing the above jobs under 'First Come First Serve' (FCFS). Also mention their flow time (days), due date (days from now) and job lateness (days late).

5. (a) Give any **five** features of space parts. 5
- (b) What are the advantages of maintenance system optimization by V-E-I-N analysis ? 5
6. (a) Name all the **five** philosophies/strategies of maintenance and explain any *one* of them. 5
- (b) Explain any **two** destructive static tests used to determine various mechanical properties. 5

7. (a) What are the *four* pillars of condition monitoring/dynamic predictive maintenance ? Explain any *two* of them. 5
- (b) What is the difference between condition monitoring and fault diagnosis based on the frequency, quality and quantity of measurement ? 5
8. (a) Why is seismometer not used for measuring mechanical vibrations ? Explain with a neat diagram. 5
- (b) What are the types of failure based on mode of failure ? Explain them. 5
9. (a) Explain the *four* probability functions with reference to reliability and availability studies of equipment failure. 5
- (b) Discuss the reliability of a system/machine whose components are connected in series by deriving its expression. 5
10. (a) Write any *four* goals of Total Productive Maintenance (TPM). 4
- (b) List any *three* differences between TPM and Total Quality Management (TQM). 3
- (c) What is zero breakdown and how it can be achieved ? 3