

**CERTIFICATE IN CONDITION
MONITORING (CCOMO)**

Term-End Examination

December, 2024

**MET-003 : CONDITION MONITORING AND
MAINTENANCE**

Time : 3 Hours

Maximum Marks : 70

Note : *Attempt any **seven** questions. All questions carry equal marks.*

1. Explain different states of plant with reference to maintenance engineering functions. 10
2. (a) What are the *five* different functions of Central Maintenance Group ? 5
- (b) Distinguish between 'Delegation' and 'Decentralisation'. 5
3. (a) Distinguish between 'No Maintenance Technique (NMT)' and 'Operate Failure and Corrective Maintenance (OFCM)' Mention any *five* points. 5

- (b) Mention any *five* bottlenecks/roadblocks in formulating the maintenance strategy. 5
4. (a) Explain No Work Pay guarantee 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 the due dates are as follows :

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

- Prepare a sequence of repairing the above jobs under Shortest Process Time (SPT). Also mention the flow time (days), due date (days from now) and job lateness (days late) for each job. 5
5. (a) Give any *five* functions of Spare Part Management. 5
- (b) What is the data required for each machine for its maintenance system optimization through V-E-I-N analysis. 5

6. (a) Name any *five* destructive test techniques used to detect defects in metallic components. Explain any *one* of them. 5
- (b) Compare the design FMEA and process FMEA on the basis of purpose, responsibility, objective, timing for commencement, period of review and FMEA first completion. 5
7. (a) What is trend monitoring ? Explain different states which an equipment is expected to undergo before its breakdown. 5
- (b) Explain the *five* different techniques of condition monitoring. 5
8. (a) Why accelerometer is used to measure displacement, velocity and acceleration ? Explain with a diagram. 5
- (b) What are the types of failure based on the volume of failure ? Explain them. 5

9. (a) What is the meaning and importance of two parameters (α and β) of Weibull distribution ? Discuss the characteristics of shape parameter (β). 5
- (b) Discuss the reliability of a system/machine whose components are connected in series by deriving its expression. 5
10. (a) Discuss the implications of 'Totality' in Total Productive Maintenance (TPM). 4
- (b) Name any *six* pillars of TPM. 3
- (c) What is modularization ? Enlist any *three* advantages of modularization. 3

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