

**CERTIFICATE IN CONDITION
MONITORING (CCOMO)**

Term-End Examination

December, 2024

MET-002 : MECHATRONICS

Time : 3 Hours

Maximum Marks : 70

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

(ii) All questions carry equal marks.

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1. Explain the following terms related to transducers : 4×2.5=10
 - (a) Linearity
 - (b) Sensitivity
 - (c) Resolution
 - (d) Scale readability
 2. Discuss any *two* methods by which the efficiency of a reciprocating compressor can be improved. 10

3. Discuss the operating characteristics of a DC motor. 10
4. What are piston pumps ? Explain their working principle with the help of a neat sketch. 10
5. (a) Compare serial and parallel data communication. 5
(b) What is the application of counters in industrial control system ? 5
6. Describe the process of position control along a trajectory. 10
7. (a) Describe the functioning of a pilot operated check valve. 5
(b) What will be percentage increase in the pressure drop across a flow control valve, if the flow is doubled ? 5
8. Describe *four* different sensing modes for photo-electric sensors. 10
9. Define a microprocessor. How does it work ? 10

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

5+5=10

- (a) PLC hardware
- (b) Actuators
- (c) Hydraulic cylinder
- (d) Hysteresis

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D-3058/MET-002