

**CERTIFICATE IN CONDITION MONITORING  
(CCOMO)**

**Term-End Examination**

**December, 2022**

**MET-002 : MECHATRONICS**

*Time : 3 hours*

*Maximum Marks : 70*

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

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1. (a) Describe four different sensing modes for photoelectric sensors. 5+5=10  
(b) Explain the concept of range sensing.
2. Distinguish between the following : 5+5=10
  - (a) Resolver and Encoder
  - (b) Thermocouple and Thermistor
3. With the help of a neat sketch, describe how the hydraulic system can be used to amplify force. 10
4. (a) What are different methods of actuating the spool ? 5  
(b) Explain the working of servo valve. 5

5. Describe different types of accumulators with their relative advantages and disadvantages. 10
6. (a) Explain the working of a series wound motor, with the help of a schematic diagram. 5
- (b) Define the following : 5
- (i) Half stepping
- (ii) Full stepping
7. Define the following :  $5 \times 2 = 10$
- (a) TRIAC
- (b) EPROM
- (c) DTR
- (d) RTS
- (e) TXD
8. What is computer interfacing ? List out the differences between the various types of data transfer techniques used in computer interfacing. 10
9. Write short notes on any *two* of the following :  $2 \times 5 = 10$
- (a) Hydraulic Cylinder
- (b) Barrier Potential
- (c) Compressors
- (d) Measurement of Orientation and Lateral Errors