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MET-001

**CERTIFICATE IN CONDITION
MONITORING (CCOMO)**

Term-End Examination

June, 2024

**MET-001 : METROLOGY, INSTRUMENTATION
AND TRIBOLOGY**

Time : 3 Hours

Maximum Marks : 70

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

1. (a) What are the standards of measurement and their classification ? Why are standards necessary ? 5
- (b) What is the SI unit of the following ? 5
 - (i) Temperature
 - (ii) Pressure
 - (iii) Current
 - (iv) Intensity of Light
 - (v) Resistance

P. T. O.

2. (a) What is error ? What is the difference between error and accuracy ? 5
- (b) What is the difference between fixed error and random error ? How do you minimize the error during measurement ? 5
3. (a) Explain hole basis system and shaft basis system of fit with the help of neat diagrams. 5
- (b) A 50 mm diameter shaft is made to rotate in the bush. The tolerance for both shaft and bush are 0.050 mm. Determine the dimension of the shaft and bush to give a maximum clearance of 0.075 mm with the hole basis system. 5
4. (a) What is Air Gauge ? What is the difference between standard gauges and limits gauges ? 5
- (b) Mention the name of the gauge that can be used for checking the following : 5
- (i) Shaft
 - (ii) Hole
 - (iii) Screw
 - (iv) Pulley
 - (v) Wire

5. (a) Describe different types of calipers for measuring the linear dimensions. 5
- (b) How the inclination is estimated with the help of spirit level ? 5
6. (a) What are the various types of projectors ? List out its applications and advantages. 5
- (b) Describe the different parts of a coordinating machine. List out its advantages. 5
7. (a) What are the difference between constructive and destructive interference ? 5
- (b) What are the uses and advantages of laser interferometer ? 5
8. (a) What are the various techniques for providing surface protection to wear ? Briefly explain any *one* technique. 5
- (b) Define the term lubricant and describe the functions of lubricants. 5

9. Write short notes on any *two* of the following : 5+5

(i) Good properties of lubricants

(ii) Functions of cutting fluids

(iii) Metrology

(iv) Strain Gauge