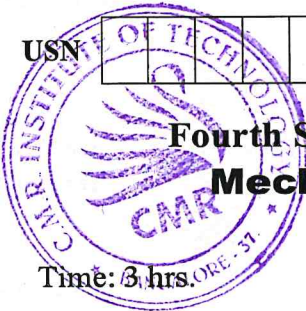


# CBCS SCHEME

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18ME46B



## Fourth Semester B.E. Degree Examination, Jan./Feb. 2021 Mechanical Measurements and Metrology

Time: 3 hrs.

Max. Marks: 100

*Note: Answer any FIVE full questions, choosing ONE full question from each module.*

### Module-1

- 1 a. Define metrology. List the objectives of measurement system. (07 Marks)
- b. With a neat sketch explain Imperial standard yard. (07 Marks)
- c. Differentiate between Line standards and End standards. (06 Marks)

OR

- 2 a. Sketch and explain sine center. (08 Marks)
- b. Explain the wringing phenomena of slip gauges. (06 Marks)
- c. Using M112 set of slip gauges, build the following dimensions (06 Marks)  
i) 86.8885      ii) 66.6665

### Module-2

- 3 a. Explain hole basis and shaft basis system. (08 Marks)
- b. Differentiate between  
i) Clearance fit and interference fit. (12 Marks)  
ii) Inter changeability and selective assembly.

OR

- 4 a. Explain the construction and working of Solex Pneumatic Comparator. (08 Marks)
- b. With a neat sketch explain Johnson Mikrokator and LVDT. (12 Marks)

### Module-3

- 5 a. Explain with a neat sketch Tool maker's microscope. (10 Marks)
- b. Explain the method of measuring major diameter of external thread with a neat sketch. (10 Marks)

OR

- 6 a. Explain with a neat sketch, base tangent method and constand chord method. (14 Marks)
- b. Write a short notes on Gear roll tester for composite error. (06 Marks)

### Module-4

- 7 a. Explain the working of Generalised measurement system with a block diagram. (10 Marks)
- b. Define the following terms (10 Marks)  
i) Accuracy    ii) Precision    iii) Threshold    iv) Hysteresis    v) Sensitivity

OR

- 8 a. State and explain any four internet problems associated in mechanical systems. (10 Marks)
- b. Explain with a neat sketch principle and working of Cathode Ray Oscilloscope (CRO). (10 Marks)

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.  
2. Any revealing of identification, appeal to evaluator and /or equations written eg, 42+8 = 50, will be treated as malpractice.

Module-5

- 9 a. Explain how torque is measured by using prony brake dynamometer. (10 Marks)  
b. With a neat sketch explain McLeod Gauge. (10 Marks)
- OR
- 10 a. Explain the construction and working of optical pyrometer. (08 Marks)  
b. Briefly explain the methods of strain measurement. (07 Marks)  
c. Explain the laws of thermocouple. (05 Marks)

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