

CBCS SCHEME

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15AU35

Third Semester B.E. Degree Examination, June/July 2018 Mechanical Measurements and Metrology

Time: 3 hrs.

Max. Marks: 80

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

Module-1

- 1 a. What is metrology? State and explain the objectives of metrology. (06 Marks)
b. With a sketch, explain any one type of material length standard. (06 Marks)
c. What is measurement? What is the significance of measurements system? (04 Marks)

OR

- 2 a. What is error? Explain the error in measuring instruments. (04 Marks)
b. Explain the following:
i) Sensitivity
ii) Accuracy and precision
iii) Repeatability
iv) Calibration. (04 Marks)
c. Using M112 set of slip gauges build the following dimensions i) 49.3115 and ii) 68.208. (08 Marks)

Module-2

- 3 a. What is a comparator? What is the need for a comparator? (04 Marks)
b. Explain with an example any one mechanical comparators. (06 Marks)
c. Explain the principle of Sine Bar. (06 Marks)

OR

- 4 a. Explain with a sketch, the working of a solex pneumatic comparators. (06 Marks)
b. Explain with a neat sketch the construction and working principle of LVDT. (06 Marks)
c. Select the size of angle gauge required to build i) $37^\circ 9' 18''$ ii) $102^\circ 8' 42''$ (04 Marks)

Module-3

- 5 a. Explain the three stages of generalized measuring method using any one example. (06 Marks)
b. With a sketch explain an electro kinetic transducer. (06 Marks)
c. Distinguish between active and passive transducer with example. (04 Marks)

OR

- 6 a. With a sketch explain piezoelectric transducer. (06 Marks)
b. Explain the principle of auto collimators. (06 Marks)
c. Explain any one type of mechanical pressure sensitive elements. (04 Marks)

Module-4

- 7 a. Explain with a sketch working of proving ring. (06 Marks)
b. Explain with a sketch working of Prony Brake. (06 Marks)
c. What is dynamometer? List all the types of dynamometers. (04 Marks)