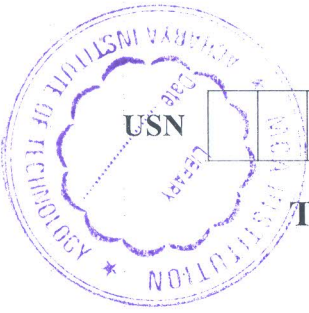


CBCS SCHEME



18AU35

Third Semester B.E. Degree Examination, Jan./Feb. 2023 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. What are the significance of measurements? (04 Marks)
- b. Explain the phases of generalized measuring systems. (08 Marks)
- c. Explain the concept of Accuracy and precision with a suitable example. (08 Marks)

OR

- 2 a. What are the objectives of metrology? (04 Marks)
- b. What are the causes and sources of errors? Explain. (08 Marks)
- c. With a neat sketch explain the international prototype meter. (08 Marks)

Module-2

- 3 a. What is Comparator? Explain the classification of comparator. (06 Marks)
- b. With a neat sketch explain the working of an optical comparator. (08 Marks)
- c. With a neat sketch explain the principle of LVDT. (06 Marks)

OR

- 4 a. What is Sine bar? How do you measure the angle by using Sine bar? (06 Marks)
- b. What are the limitations and precautions in use of Sine bar (06 Marks)
- c. With a neat sketch explain the working of an clinometers. (08 Marks)

Module-3

- 5 a. What is Transfer Efficiency? Explain the Primary and secondary transducer. (06 Marks)
- b. Explain with a sketch the commonly used mechanical transducers. (06 Marks)
- c. With a neat sketch explain the Piezo – Electric transducer. (08 Marks)

OR

- 6 a. List the inherent problem in mechanical intermediate elements. (04 Marks)
- b. With a neat sketch explain the working of an cathode ray oscilloscope. (08 Marks)
- c. With a neat sketch explain the working of an oscilloscopes. (08 Marks)

Module-4

- 7 a. With neat sketch explain the platform balance. (08 Marks)
- b. What is Torque? How do you measure the torque. (04 Marks)
- c. With a neat sketch explain how do you measure torque in prony brake dynamometer. (08 Marks)

OR

- 8 a. What is strain gauge? Explain the types of strain gauge. (04 Marks)
b. Explain the preparation and mounting of strain gauges. (06 Marks)
c. Explain the method of strain measurement. (10 Marks)

Module-5

- 9 a. Explain the principal of interchangeability and selective assembly. (04 Marks)
b. With a neat sketch explain the hole basis and shaft basis system of a type of fits. (08 Marks)
c. Explain the geometric and position tolerance. (08 Marks)

OR

- 10 a. With a neat sketch explain the working of an bridge-man gauge. (08 Marks)
b. What are the Laws of thermocouple? (04 Marks)
c. With neat sketch explain the principle of optical pyrometer. (08 Marks)
