



GBCS SCHEME

18AU35

Third Semester B.E. Degree Examination, June/July 2023 Mechanical Measurement 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. Draw a block diagram of a generalized measurement system. Explain the function performed by each element with example. (10 Marks)
b. Sketch and explain International prototype meter. (10 Marks)

OR

- 2 a. Define: i) Accuracy ii) Precision iii) Calibration iv) Sensitivity v) Repeatability (10 Marks)
b. Built the following dimensions using M-87 gauge sets:
i) 49.3825mm ii) 87.3215mm (10 Marks)

Module-2

- 3 a. Explain with sketch Ziess ultra optical comparator. (10 Marks)
b. Sketch and explain Solex comparator. (10 Marks)

OR

- 4 a. Explain the sine principle. How sine bar is used for measuring angel. (10 Marks)
b. Sketch and explain bevel protractor. (10 Marks)

Module-3

- 5 a. Describe the various mechanical detector transducer elements in brief. (10 Marks)
b. What is the function of Transducer? With the help of example, explain primary and secondary transducer. (10 Marks)

OR

- 6 a. Sketch and explain cathode ray oscilloscope. (10 Marks)
b. Sketch and explain X-Y plotters. (10 Marks)

Module-4

- 7 a. Sketch and explain platform balance. (10 Marks)
b. Explain with a neat sketch, the working principle of proving ring. (10 Marks)

OR

- 8 a. With a neat sketch, explain the working principle of prony brake dynamometer. List the limitations. (08 Marks)
b. Write a note on preparation and mounting of strain gauges and also explain gauge factor. (12 Marks)

Module-5

- 9 a. Sketch and explain 3-types of fit. (10 Marks)
b. Explain hole basis systems and shaft basis systems, with neat diagrams. (10 Marks)

OR

- 10 a. Sketch and explain McLeod gauge. (10 Marks)
b. Sketch and explain optical pyrometer. (10 Marks)

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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.