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10ME42B/AU42B

Fourth Semester B.E. Degree Examination, June/July 2016

Mechanical Measurements and Metrology

Time: 3 hrs.

Max. Marks:100

Note: Answer FIVE full questions, selecting at least TWO questions from each part.

PART – A

- 1 a. List the objectives of metrology. (05 Marks)
b. Explain the wringing phenomena of slip gauges with neat figure. (05 Marks)
c. List the slips to be wrung together to produce an overall dimension of 92.357 mm using two protection slips of 2.500 mm size. (10 Marks)
- 2 a. What are the various types of fits used for the purpose of assembly of machine parts? Explain each with neat figure. (10 Marks)
b. With neat figure, explain: i) Plug gauges, ii) Ring gauges, iii) Snap gauges. (10 Marks)
- 3 a. How the comparators are classified? (05 Marks)
b. Describe with a neat sketch construction and working of LVDT. (10 Marks)
c. Select the sizes of angle gauges required to build (i) $37^{\circ}9'18''$ and show the combination. (05 Marks)
- 4 a. Explain the principle of autocollimator with neat figure. (10 Marks)
b. Describe the 3-wire method of measuring effective diameter of threads. Give the setup for the above. (10 Marks)

PART – B

- 5 a. Explain the generalized measurement system with block diagram. Give examples. (10 Marks)
b. Explain with sketch the construction and working of an electronic transducer. (10 Marks)
- 6 a. Describe in detail a ballast circuit. (10 Marks)
b. What are X-Y plotters? With a block diagram, explain its working. (10 Marks)
- 7 a. With the help of neat sketch, explain the working principle of prony brake dynamometer. (10 Marks)
b. Explain the working of McLeod gauge with neat sketch. (10 Marks)
- 8 a. With figure describe the construction and working principle of optical pyrometer. (10 Marks)
b. Describe the strain measurement by neat figure. (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.