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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.***

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.

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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°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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