

# CBCS Scheme

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15MA46

Fourth Semester B.E. Degree Examination, Dec.2017/Jan.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. With a neat sketch, explain the Generalized measurement system. (08 Marks)  
b. Explain the following terms :  
i) Accuracy ii) Precision iii) Repeatability iv) Reliability. (08 Marks)

OR

- 2 a. Illustrate the objectives of metrology. (08 Marks)  
b. Explain the classification of slip gauges. (08 Marks)

### Module-2

- 3 a. Explain the purpose of using limit gauges. (08 Marks)  
b. Explain the classification of comparators. (08 Marks)

OR

- 4 a. Explain Taylor's Principle. (08 Marks)  
b. Explain working principle of solex comparator. (08 Marks)

### Module-3

- 5 a. With a neat sketch illustrate the screw thread terminology. (08 Marks)  
b. With a neat sketch explain the gear tooth terminology. (08 Marks)

OR

- 6 a. Explain the measurement of effective diameter by using two wire methods. (08 Marks)  
b. With a neat sketch explain laser interferometer. (08 Marks)

### Module-4

- 7 a. List and explain the error in measurement. (08 Marks)  
b. List and explain any two methods of measurement. (08 Marks)

OR

- 8 a. Explain the working principle of CRO. (08 Marks)  
b. Give the classification of transducers. (08 Marks)

### Module-5

- 9 a. Explain the following term :  
i) Force ii) Torque iii) Thermocouple iv) Dynamometer. (08 Marks)  
b. List and explain any one device for measuring force. (08 Marks)

OR

- 10 a. Explain strain gauge load cell. (08 Marks)  
b. Explain the four methods of measuring torque. (08 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.