D 90296 (Pages : 2) Name...................................

Reg. No..............................

SEVENTH SEMESTER B.TECH. (ENGINEERING) [09 SCHEME] DEGREE EXAMINATION, NOVEMBER 2015

ME/PTME 09 703—METROLOGY AND INSTRUMENTATION

Time : Three Hours   Maximum : 70 Marks

Part A

Answer all questions.

1. What are the types of controllable errors ?

2. Write a short note on rotatory differential transformer.

3. State the principle on which works thermocouple.

4. Specify the applications of gauges.

5. What is machine vision ?

(5 × 2 = 10 marks)

Part B

Answer any **four** *questions.*

6. Write the difference between sensitivity and readability.

7. Explain the time constant.

8. Illustrate the passive transducer and explain any *one* of that in detail.

9. Explain the function of RTD.

10. State the principle of autocollimator.

11. Write a short note on CMM ?

(4 × 5 = 20 marks)

Part C

12. (a) Explain the following terms : repeatability, accuracy, precision and discuss the relationship between accuracy and cost.

Or

(b) Explain in detail about the random errors and error distribution.

13. (a) Discuss the function of piezoelectric sensor along with equivalent circuit of sensor.

Or

Turn over

(b) Describe the function of strain gauge and also explain the calibration approach of it.

14. (a) Explain the function of hotwire anemometer with neat sketch.

Or

(b) Explain the working principle and function of thermistors.

15. (a) Explain why it is not preferable not to use a sine bar generating angles greater wherever than 45° high accuracy is demanded.

Or

(b) Discuss the following : (i) image forming, (ii) image processing, (iii) defining and analyzing the characteristic of image.

(4 × 10 = 40 marks)