C 29745   (Pages : 2)   Name.................................

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

SEVENTH SEMESTER B.TECH. (ENGINEERING) DEGREE EXAMINATION OCTOBER 2012

ME 09 703—METROLOGY AND INSTRUMENTATION

(2009 Admissions)

Time : Three Hours   Maximum : 70 Marks

Part A

Answer all questions.

I. (a) Define precision and accuracy.

   (b) Distinguish between 'Line Standard' and 'End standard'.

   (c) State the basic requirements of a transducer.

   (d) Give classification of temperature measuring instruments.

   (e) Define the terms 'Primary Texture' and 'Secondary Texture'.

                                                      (5 × 2 = 10 marks)

Part B

Answer any four questions.

II. (a) Discuss various types of errors in measurement systems ?

   (b) What is input filtering method ?

   (c) Explain the working of a differential transformer.

   (d) Sketch a Mc Leod gauge and explain its working.

   (e) Sketch and explain various thermocouple junctions.

   (f) Describe in brief the total radiation pyrometer.

                                                      (4 × 5 = 20 marks)

Part C

Answer all questions.

III. (a) Define and explain physical measurement. Briefly explain the various methods employed in measurements.

                                   Or

   (b) Explain the method of opposing inputs with a suitable example.

                                                      Turn over

IV. (a)   What is a transducer ? Explain different types of transducer.

Or

(b)   Write short notes on : (i) Bulk modules gauge.

(ii) Thermal conductivity gauges.

V. (a)   Explain theory and constructional details of (j) Rotameter. (ii) Drag force flow meter.

Or

(b)   Describe with neat sketches ;

(i)   Liquid filled thermometer.

(ii)   Resistance thermometer.

VI. (a)   Briefly explain with sketches/diagrams.

(i) Sine bars. (ii) Slip gauges. (iii) Angle gauges.

Or

(b)   How the Tomlinson surface recorder and Talysurf machine work ? What are their relative merits.

(4 × 10 = 40 marks)