C 62982   (Pages : 2)   Name......................................

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

SEVENTH SEMESTER B.TECH. (ENGINEERING) DEGREE [SUPPLEMENTARY] EXAMINATION, APRIL 2014

(2009 Scheme)

ME/PTME 09 703 – METROLOGY AND INSTRUMENTATION

Time : Three Hours   Maximum : 70 Marks

Part A

*Answer **all** questions.*

1. Define Accuracy.

2. Define readability of an instrument.

3. What are the advantages of using McLeod gauge?

4. Why platinum is most commonly used for metallic resistance thermometers?

5. Define linear measurement.

(5 × 2 = 10 marks)

Part B

*Answer any **four** questions.*

6. What is dynamic error? How is it caused?

7. Write a short note on parallax error.

8. How diaphragm gauges is used for measuring low pressure?

9. What are the needs of flow metering?

10. Draw a schematic sketch of disappearing filament optical pyrometer.

11. Distinguish smooth and flat surface.

(4 × 5 = 20 marks)

Part C

*Answer **all** questions.*

12. Briefly explain the method of opposite inputs for cancelling bad effects of spurious inputs.

Or

13. A first order instrument must measure signals with frequency content up to 100 Hz with an amplitude inaccuracy of 5%. What is the maximum allowable time constant? What will be the phase-shift at 50 and 100 Hz?

Turn over

14. Briefly explain the principle and characteristics of Ionization gauges.

Or

15. Explain the method of calibration of strain gauges.

16. Briefly explain the theory and construction details of Rotameters.

Or

17. Write a short note on :

      (a) Liquid in Glass thermometer.

      (b) Drag force flow meter.

18. Explain with neat sketches :

      (a) Angle Dekkor.

      (b) Angle gauges.

Or

19. How Sine bar be used for measuring angles? What are the sources of errors in Sine bars and what are its limitations?

(4 × 10 = 40 marks)