

Reg. No. :

Question Paper Code : 11328

B.E./B.Tech. DEGREE EXAMINATION, APRIL/MAY 2011

Fourth Semester

Electronics and Instrumentation Engineering

EI 2251 — INDUSTRIAL INSTRUMENTATION — I

(Common to Instrumentation and Control Engineering)

(Regulation 2008)

Time : Three hours

Maximum : 100 marks

Answer ALL questions

PART A — (10 × 2 = 20 marks)

1. **Mention any two types of load cell.**
2. **What are the applications of stroboscope?**
3. **What is LVDT?**
4. **Write the demerits of bridge type gas densitometer.**
5. **What are merits of elastic type pressure gauge?**
6. **What is calibration?**
7. **Explain RTD.**
8. **Mention the application of Thermistor.**
9. **State the laws of thermocouple.**
10. **Mention the differences between thermocouple and pyrometer.**

PART B — (5 × 16 = 80 marks)

11. (a) (i) **Explain any two types of load cell with a neat diagram. (8)**
- (ii) **Write short notes on stroboscope. (8)**

Or

- (b) (i) **What are the differences between AC and DC tachogenerator. (8)**
 - (ii) **Explain any two types of torque measurement with a neat sketch. (8)**
12. (a) (i) **Explain Piezoelectric and strain gauge type accelerometer with necessary diagram. (8)**

(ii) Explain the mechanical type of vibration measuring instruments with merits and demerits. (8)

Or

(b) (i) Discuss pressure head type densitometer with neat diagram. (8)

(ii) Explain the merits and demerits of ultrasonic densitometer with its application. (8)

13. (a) (i) Mention the differences between elastic type and electrical type pressure gauges. (8)

(ii) Explain the capacitive type pressure gauge with diagram and applications. (8)

Or

(b) (i) Explain the Piezo-resistive pressure sensor with merits and demerits. (8)

(ii) Explain the concept of vacuum measurement with one example. (8)

14. (a) (i) Discuss the standard procedure for calibrating thermometer in detail. (8)

(ii) Elaborate any one type of filled in system thermometer with relevant sketch. (8)

Or

(b) (i) Explain the 3 lead RTD used in industry with their characteristics. (8)

(ii) Explain thermistor with merits and demerits. (8)

15. (a) (i) Explain the signal conditioning system used in thermocouple with relevant sketch. (8)

(ii) Discuss the commercial circuit for cold junction compensation in detail. (8)

Or

(b) (i) Explain the special technique for measuring high temperature using thermocouple. (8)

(ii) Elaborate on optical pyrometer with neat sketch. (8)