C 56378 (Pages : 2) Name.....

Reg. No.....

EIGHTH SEMESTER B.TECH. (ENGINEERING) DEGREE EXAMINATION
JUNE 2009

EE 2K 803/PTEE 2K 802 : INSTRUMENTATION SYSTEMS

Time : Three Hours Maximum : 100 Marks

Answer **all** *questions.*

Part A

1. What do you mean by calibration of instruments ? Explain.
2. A thermistor has a resistance of 3980 Ω at ice point (0° C) and 794 Ω at 50° C. The resistance temperature relationship is $R_T = a\ R_O \exp(b/T)$ calculate the values of constantants *a* and *b*.
3. Explain about low-pass and high-pass filters with its characteristics.
4. What is a signal conditioning system ? What are its functions ?
5. Explain the advantages of digital indicating instruments.
6. Describe the working of galvanometric recorders.
7. Define transfer function. What do you mean by order of the system ?
8. Derive the response of first order system for a step input. Draw the response.

(8 × 5 = 40 marks)

Part B

9. Explain any *three* methods of measuring pressure.

Or

10. Explain various methods used for measurement of humidity and moisture.
11. (a) Describe the A.C. bridge using push-pull transducer. (7 marks)

    (b) Explain the concept of frequency division multiplexing.

Or

12. Explain the following modulation techniques :—

    (a) Amplitude modulation. (5 marks)

    (b) Frequency modulation. (5 marks)

    (c) Pulse width modulation. (5 marks)

13. Describe briefly about the display methods and devices.

Or

Turn over

14. Explain the following recording methods with neat diagrams :
    (a) Magnetic recorders. (7 marks)
    (b) Digital recorders. (8 marks)

15. Explain about the analog data acquisition system.

Or

16. Explain the process control systems for pressure and level.

(2 × 7½ = 15 marks)

[4 × 15 = 60 marks]