C 20286 (Pages : 2) Name.....

Reg. No.....

EIGHTH SEMESTER B.TECH. (ENGINEERING) DEGREE EXAMINATION, JUNE 2006

PTEE 2K 802/EE2K 803—INSTRUMENTATION SYSTEMS

Time : Three Hours Maximum : 100 Marks

Answer **all** *questions.*

Part A

1. Briefly explain the errors in the calibration of standard platinum resistance thermometers.
2. List out the reasons for using differential pressure detecting element in flow measurements and briefly explain the velocity distribution of laminar flow and turbulent flow.
3. What is differential amplifier ? What are the advantages of differential amplifier ?
4. What is the role of instrumention amplifier ? Enumerate the desirable features of instrumentation amplifier.
5. What is dynamic scattering, define the *two* types of LCD cells ?
6. List out the advantages of LCD over LED.
7. What is mathematical modelling ? What is the need of modelling ?
8. Write the force-voltage analogy for the mechanical translational and rotational system.

(8 × 5 = 40 marks)

Part B

UNIT I

9. Explain briefly the level measurement using capacitor.

Or

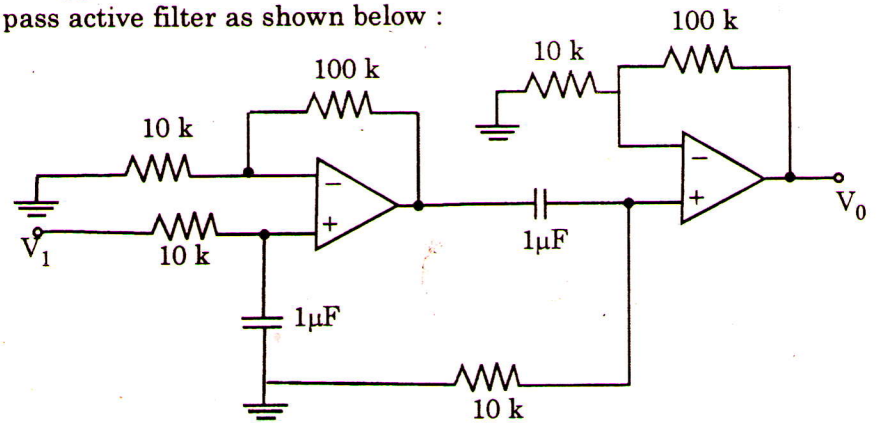
10. Explain the principle and operation of Hot wire Anemometer with necessary diagram.

UNIT II

11. Explain different types of filter with suitable diagrams.

Or

12. Calculate the upper and lower frequencies and voltage amplification between these frequencies for a band pass active filter as shown below :



Turn over

UNIT III

13. Write notes on :

(a) Pen driving system. (7½ marks)

(b) Galvanometric recorders. (7½ marks)

Or

14. Write short notes on :

(a) Digital recorders. (5 marks)

(b) Magnetic recorders. (5 marks)

(c) Servo recorders. (5 marks)

UNIT IV

15. Derive the transfer function for the first order system and integrating process (system).

(7½ + 7½ = 15 marks)

Or

16. Determine the reading which the following instrument will record and after how much time of the actual occurrence of maximum variation, it will be recorded by the instrument.

The actual temperature in the pressure changing ± 20°C every 2 min. The temperature indicator bulb is installed in a well. The 'e' of bulb is 20 sec and of the well = 40 sec.

[4 × 15 = 60 marks)