APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY
FIRST SEMESTER M. TECH DEGREE EXAMINATION
Electronics & Communication Engineering-Interdisciplinary Engineering
(Robotics and Automation)
04EC6907—Measurements and Sensors for Automation

Max. Marks: 60   Duration: 3 Hours

PART A
Answer All Questions
Each question carries 3 marks

1. What is the significance of measurements?
2. Differentiate between scale range and scale span giving suitable examples.
3. What is the principle behind piezo-electric transducer?
4. State conservation of angular momentum in mass flow meter.
5. What are the differences between Matteucci effect, Villari effect and Wiedemann effect in magneto –elastic sensors?
6. State the principle behind buoyancy level measurement.
7. Analyze band rejection filter.
8. Show deflection type Wheatstone bridge.

PART B
Each question carries 6 marks

9. Enumerate the main static characteristics of measuring instruments.

OR

10. Define the class of standards available for use and calibration process.

11. Illustrate linear approximation of resistance thermometer.

OR

12. Give the dynamics for unit step input to a first order system.

13. Explain the transfer characteristics for the application of choosing a transducer.

OR

14. Write short note optical displacement transducer.

15. Differentiate AC tachometer and DC tachometer generator.

OR

16. Describe different methods used for reference junction compensation for thermocouples.

17. Generalize resistance and capacitance probes for level measurement.

OR

18. Explain Hall effect sensor.
19. Design Charge amplifier used in accelerometer.

OR

20. What are the major processing steps in developing the standard semiconductor microsensor technology? Describe with suitable diagrams.