# AP 5101 Sensors, Actuators and Interface Electronics

## Important 2 Marks Questions

### Unit I

1. State the difference between accuracy and precision of a measurement.
2. What are primary and secondary measurements?
3. What are cause and effect of systematic errors and random errors.
4. Why are systems subject to dynamic characterisation?
5. Explain the differences between error and uncertainty. What are systematic and random errors?
6. What is meant by wire and three wire sensors? Give typical example for each type.

### Unit II

1. Define gauge factor of strain gauge.
2. What is Hall effect?
3. Write the application of magneto elastic sensor.
4. Mention the criteria to choose a sensor.
5. Differentiate between differential and inductive sensors.
6. The unknown in a Wheatstone bridge is measured utilizing three known resistances such that $R_4 = R_2R_3/R_1$. If the values of $R_1 = 100 \pm 0.5\%$ ohm, $R_2 = 500 \pm 0.5\%$ ohm, $R_3 = 292 \pm 0.5\%$ ohm, determine the error in unknown resistance.

### Unit III

1. List any four piezo-electric material.
2. Write any two source of interference and reduction technique.
3. Describe noise in an amplifier.
4. What is need for signal conditioning?
5. How do you perform signal conditioning for self-generating sensors?
6. Distinguish the photo voltaic sensors from photo resistive sensors.

### Unit IV

1. Give the features of servo motors.
2. State the relay principle.
3. Compare accuracy and resolution in measurement.
4. Explain the principle of synchros.
5. Outline the method of varying the speed of the stepper motor.
6. Relate microsyn and inductosyn.

### Unit V

1. Write the merits and demerits of digital flow meter.
2. Write the applications of the CCD imaging sensors.
3. Write briefly on quartz digital thermometer.

4. What is a magneto diode?
5. Mention the applications of sensor based MOSFET transistor.
6. Brief the working principle of ultrasonic sensor.