Module – 2.

Assignment – 3 (Last)

(1) What is transducer? Discuss the classification of transducers with examples.

(2) List the different types of transducers. What is the difference between active and passive transducers.

(3)(a) Describe piezoelectric transducers. Discuss merits, demerits and application of piezoelectric transducers.

(b) A piezoelectric crystal has a thickness of 2.5 mm and a voltage sensitivity of 0.05 Vm/N. Determine the output voltage when it is subjected to a pressure of 1.6×10^6 N/m^2.

(4)(a) What are capacitive transducers? Explain any capacitive transducer.

(b) A capacitive transducer with its plate separation of 0.05 mm under static conditions has a capacitive of 5×10^{-12} F. Determine the axial displacement, which causes a change of capacitive of 0.75×10^{-12} F.

(5) Describe the construction, working principle and application of Inductive transducers.

(6)(a) Describe thermistor.

(b) A thermistor has a resistance of 4 kΩ at 0°C and 800 Ω and 40°C. Determine the range of resistance to be measured if the temperature rises from 50°C to 100°C.

(7)(a) Describe operating principle of resistance strain gauge.

(b) Calculate the gauge factor of a strain gauge of a 1.5 mm diameter conductor that is 24 mm long changes length by 1 mm and diameter by 0.02 mm under a compression force.