

[3 hrs]

[80 Marks]

- Note: 1. Question 1 is compulsory
2. Answer any three out of remaining question
3. Assume suitable data where required

- Q1 Solve Any Four** 20
- a) What is the Need for Actuators in IoT 05
 - b) Explain Capacitive and Inductive displacement Sensor 05
 - c) What type of Flow sensors are used in IoT applications? 05
 - d) What are protocols for standard data communication interfacing 05
 - e) Explain amplification step in Smart sensor 05
- Q2**
- a) What is thermoelectric effect? How it works to detect the heat flow? 10
 - b) Explain construction and working of UV detector. 10
- Q3**
- a) With neat diagram explain mercury pressure sensor 10
 - b) Which are different sensors used in home automation system. Explain their working principle 10
- Q4**
- a) Explain how X- ray and nuclear radiation sensors are used in IoT Applications? 10
 - b) Which are different sensors used in automobile system. Explain their working principle 10
- Q5**
- a) Explain the concept of humidity sensing. Compare capacitive and resistive Humidity sensors. 10
 - b) Explain how Signal Conditioners help in enhancing the performance of Sensors in IoT Applications? 10
- Q6 Write short note on: - (Solve Any Four)** 20
- a) Piezo electric & Piezo resistive sensors. 05
 - b) MEMS Technology. 05
 - c) Indirect Pressure Sensor 05
 - d) Multi-sensor Arrays 05
 - e) Signal Conditioners 05
