

Duration: 3hrs

[Max Marks:80]

- N.B. : (1) Question No 1 is Compulsory.**
(2) Attempt any three questions out of the remaining five.
(3) All questions carry equal marks.
(4) Assume suitable data, if required and state it clearly.

- 1** Attempt any FOUR **[20]**
- a Discuss the criteria to choose a Sensor based on the required application.
 - b Explain working principle of Humidity sensors with an example.
 - c Define NFC? Explain operation of NFC.
 - d What is MEMS? Give two examples of MEMS devices which are characterized by sensors and actuators.
 - e Classify different types of RFID Tags.
- 2** a Describe piconet and scatternet in Bluetooth? Define different modes of operation in BT. **[10]**
- b Explain Data logger with the help of block diagram and its functions. **[10]**
- 3** a Compare RTD, Thermocouples and Thermistors based on working principle, temp. range, accuracy, stability, sensitivity, and response time. **[10]**
- b Explain different types of smoke detectors with their working principle. **[10]**
- 4** a Describe with a block diagram working of 3-bit Flash ADC **[10]**
- b Explain in detail sensors used for radio astronomy **[10]**
- 5** a Explain sensors used for environmental monitoring **[10]**
- b Explain in detail block diagram and working principle of Smart Sensors. **[10]**
- 6** a Explain working principle of Humidity sensors with an example. **[10]**
- b Explain in detail any one MEMS device used in modern automobile systems with working principles. **[10]**
