



- Notes :
1. Same answer book must be used for each section.
 2. All questions carry equal marks.
 3. Due credit will be given to neatness and adequate dimensions.
 4. Assume suitable data wherever necessary.
 5. Diagrams and Chemical equation should be given wherever necessary.
 6. Illustrate your answers wherever necessary with the help of neat sketches.

1. a) Illustrate the following terms with examples. 8
 - i) Integrated Sensors.
 - ii) Smart sensor.
 - iii) Quasi Digital Sensors.
- b) What are frequency sensors and list the advantages of frequency sensors with suitable examples. 8

OR

2. a) Draw figure and explain SoC in details. 8
- b) Draw block diagram of MEMS and explain in details. 8
3. a) Explain following terms an related to Data Acquisition System (DAQ). 8
 - i) Acquisition time.
 - ii) Definition of DAQ.
 - iii) Data Logger.
 - iv) Background Acquisition.
- b) Describe with block diagram DAQ method with time - dividing channeling. 8

OR

4. a) Describe different static errors in case of DAQ systems. 8
- b) Describe Different Methods of errors reductions in DAQ systems. 8
5. a) Illustrate in detail program oriented conversion method. 8
- b) Describe the main feature of PCM. 8

OR

6. a) Describe the Hall Effect Sensors and its function. 8

- b) Illustrate in detail frequency time domain sensors in details. **8**
- 7.** a) How the delay of reaction to interaction is determined **8**
- b) Describe the principle of Virtual Instrumentation with its definition. **8**

OR

- 8.** a) Describe in Detail why some of the frequency time domain sensors are placed in High Impedance state. **8**
- b) Draw block diagram of Multilayer Sensors Network Architecture and explain its functionality. **8**
- 9.** a) Explain in detail functionality of Multi parameter sensors. **8**
- b) Draw block diagram for data loggers for Pressure Sensors and explain its working principles. **8**

OR

- 10.** a) Illustrate working of universal sensor and Transducer Interface. **8**
- b) Draw & explain the block diagram of Digital magnetic sensors and systems using hall effect sensor and VFDC. **8**
