CBCS SCHEME

USN | | | | | | | | | | |

18EI741

Seventh Semester B.E. Degree Examination, Feb./Mar. 2022
Smart Sensors and Intelligent Instrumentation

Time: 3 hrs. Max. Marks: 100

Note: ***Answer any FIVE full questions, choosing ONE full question from each module.***

Module-1

1 a. Define sensor and explain general transducer model. **(10 Marks)**
b. With necessary diagram, explain about lasers in micromachining. **(10 Marks)**

OR

2 a. With necessary diagram, explain Silicon – on – Silicon bonding. **(10 Marks)**
b. Discuss about integration of micromachining and microelectronics. **(10 Marks)**

Module-2

3 a. Explain the PWM output pressure with a neat schematic. **(10 Marks)**
b. Discuss about power saving capability of micro controller unit. **(10 Marks)**

OR

4 a. With necessary block diagram, explain custom MCU and various building blocks. **(10 Marks)**
b. Discuss in detail about sensor integration. **(10 Marks)**

Module-3

5 a. Explain about ISO's Open Systems Interconnection model. **(10 Marks)**
b. Explain the construction of an AFM (Atomic Force Microscope) probe. **(10 Marks)**

OR

6 a. Discuss about intelligent transportation system. **(10 Marks)**
b. Explain CAN protocol with CAN dataframe and CAN error frame. **(10 Marks)**

Module-4

7 a. Explain about flip-chip packaging technology. **(10 Marks)**
b. Discuss about wafer-level sensor reliability. **(10 Marks)**

OR

8 a. Explain IEEE 1451.3 interface specification. **(10 Marks)**
b. Discuss about extending the system to the network. **(10 Marks)**

Module-5

9 a. Discuss about software, sensing and the system. **(10 Marks)**
b. Explain the object model for control. **(10 Marks)**

OR

10 a. Explain remote diagnosis technique. **(10 Marks)**
b. Discuss in detail about alternative views of smart sensing. **(10 Marks)**

* * * * *