

CBCS SCHEME

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18EI753

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

Time: 3 hrs.

Max. Marks: 100

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

Module-1

- 1 a. With a block diagram, explain the generic control system. (10 Marks)
b. How are two wafers bonded together? Explain this for Silicon-on-Silicon bonding and Silicon-Glass-bonding. (10 Marks)

OR

- 2 a. Explain various steps of development towards increased integration of micromachining and microelectronics. (10 Marks)
b. Compare bulk micromachining and surface micromachining process. (05 Marks)
c. Discuss the LIGA process micromachining with suitable diagram. (differential pressure sensor) (05 Marks)

Module-2

- 3 a. Explain the basic MCU control block diagram. (10 Marks)
b. Explain MCU's for sensor interface with respect to peripherals, memory and power saving capability. (10 Marks)

OR

- 4 a. With the block diagram, explain the EVM development tool for 68HCO5MCU. (10 Marks)
b. Write the features of a 16-bit DSP56L811. (06 Marks)
c. Differences between DSP and MCU architecture. (04 Marks)

Module-3

- 5 a. Explain the field bus control system architecture. (10 Marks)
b. Explain the functions of seven layers OSI model. (10 Marks)

OR

- 6 a. With a block diagram, explain the principle of operation of RFID tag. (10 Marks)
b. Discuss about CAN module with a block diagram. (10 Marks)

Module-4

- 7 a. Write the IEEE 1451 working relationship with a necessary diagram. (10 Marks)
b. Explain the flip chip packaging technique used in IC technology with suitable diagram. (10 Marks)

OR

- 8 a. Discuss about testing smart sensors. (10 Marks)
b. Discuss about transducer electronic datasheet. (10 Marks)

Module-5

- 9 a. Explain the Boeing 777 adaptation of IEEE 1451.2 standard. (10 Marks)
b. With a neat diagram, explain the intelligence integrated wireless sensor. (10 Marks)

OR

- 10 a. Discuss about Internet Software with a diagram. (10 Marks)
b. With a block diagram, explain the monolithic MCU with integrated pressure sensor. (10 Marks)

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Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and /or equations written eg, 42+8 = 50, will be treated as malpractice.