



SEVENTH SEMESTER B. TECH. (INSTRUMENTATION AND CONTROL ENGG.)

END SEMESTER DEGREE EXAMINATIONS, DECEMBER – 2018

SUBJECT: SMART SENSORS [ICE 4012]

TIME: 3 HOURS

MAX. MARKS: 50

Instructions to candidates

- Answer **ALL** questions.
- Missing data may be suitably assumed.

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| 1A | Explain the requirements of a sensor interface. | 3 |
| 1B | With a block diagram explain the working of an integrated smart sensor. | 5 |
| 1C | List the four standard registers of MODBUS. | 2 |
| 2A | Discuss the salient features of sensor electronics model. | 4 |
| 2B | Explain how ANSI/ISA current transmitter connection type is represented. | 3 |
| 2C | Describe the bus arbitration of a CAN bus. | 3 |
| 3A | Characterize the functionality of 1451.1 client/ server communication model. | 4 |
| 3B | Specify the message format of 1451.4 standard. | 3 |
| 3C | Illustrate the state diagram of transducer channel operating states of 1451.3 standard. | 3 |
| 4A | With the block diagram explain travel and traffic management system. | 4 |
| 4B | Explain how self-healing function in a smart grid is achieved. | 3 |
| 4C | Explain the communication modes in ITS. | 3 |
| 5A | Describe the scenario of smart grid with aspects of sensor network. | 5 |
| 5B | Discuss the importance of information driven automation architecture in relevance to I4.0. | 5 |
