



MANIPAL INSTITUTE OF TECHNOLOGY
MANIPAL
(A constituent unit of MAHE, Manipal)

SEVENTH SEMESTER B.TECH. (INSTRUMENTATION AND CONTROL ENGG.)
END SEMESTER DEGREE EXAMINATIONS, DECEMBER - 2019

SUBJECT: SMART SENSORS [ICE 4012]

TIME: 3 HOURS

MAX. MARKS: 50

Instructions to candidates :Answer ALL questions and missing data may be suitably assumed.

- 1A. List of the challenges of smart sensor.
1B. Explain the process of sensor signal enhancement.
1C. Sketch the different types of two wired communications. (4+3+3)
- 2A. Represent the message frame of MODBUS.
2B. Explain the operation of interrupt and pooling in CAN.
2C. Compute the network parameter given 5 number of children's, 3 number of Routers and depth of network being 3 for a Zigbee network. (2+3+5)
- 3A. Characterise the transducer channel functional block of 1451.0
3B. Depict the working of publish subscribe communication model.
3C. List the elements of TED framework with description of its range and size. (4+4+2)
- 4A. Represent the timestamp generation model of 1588-2008 protocol.
4B. Explain the concept of dynamic networking in 1451.1.4
4C. What are the challenges of the Smart factory? (2+3+5)
- 5A. Sketch the connectivity diagram of Intelligent Transport System.
5B. How is the demand management achieved in Smart grid?
5C. What is the features of smart grid? (5+2+3)
