## MANIPAL INSTITUTE OF TECHNOLOGY

BY LIFE A Constituent Institution of Manipal University

## SEVENTH SEMESTER B.TECH. (E & C) DEGREE END SEMESTER EXAMINATION NOVEMBER 2018 SUBJECT: EMBEDDED NETWORKING (ECE - 4002)

Reg. No.

Instructions to candidates

- Answer ALL questions.Missing data may be suitably assumed.
- 1A. List the differences between embedded systems and general purpose computing system?
- 1B. Describe the functions of all the signals in the RS232 DB9 connector.
- 1C. List the features of ISA bus standard. Also describe the memory write and memory read operation with neat timing diagram.

(3+3+4)

- 2A. What are the advantages of using bit stuffing? Describe the bit stuffing used in CAN bus with example.
- 2B. Describe all the fields in the extended data frame of CAN bus with neat frame format.
- 2C. Explain all the fields in the configuration descriptors in the USB.

(3+3+4)

- 3A. Describe in detail the limitations of Ethernet over other network.
- 3B. Describe the features of Dallas Semiconductor DSTINIm400 (TINI) module used for embedded networking application.
- 3C. Describe the following types of encoding schemes used in media systems for communication in the Ethernet network for the binary data stream 00111101.
  - i. Manchester ii. MLT-3 iii. NRZI iv. NRZ

(3+3+4)

- 4A. Explain working of an Ethernet controller.
- 4B. With relevant diagram, describe the typical fiber optic transmitter and receiver module.
- 4C. With relevant diagram, explain the process involved in data exchange using TCP connection.

(3+3+4)

- 5A. Describe the Radio signal-based localization techniques used for distance-estimation in WSN.
- 5B. Explain how the energy conservation is achieved in B-MAC protocol in WSN.
- 5C. Explain the Directed Diffusion event-based data-centric WSN routing protocol with example.

(3+3+4)