## Reg. No.

## MANIPAL INSTITUTE OF TECHNOLOGY

MANIPAL A Constituent Institution of Manipal University

## SEVENTH SEMESTER B.Tech. (E & C) DEGREE END SEMESTER EXAMINATION NOV/DEC 2017 SUBJECT: EMBEDDED NETWORKING (ECE - 4002)

TIME: 3 HOURS	MAX. MARKS: 50
Instructions to candidates	

- Answer **ALL** questions.
  - Missing data may be suitably assumed.
- 1A. Describe the features of RS 485 communication standard. Also draw the timing diagram.
- 1B. Describe the operations involved in reading from a slave in I2C interface.
- 1C. Compare the serial communication over parallel communication.

(5+3+2)

- 2A. Describe in detail the following features of CAN bus: multi-master, protocol flexibility, remote transmit request and error detection
- 2B. Describe the isochronous data transfer method used in USB communication.
- 2C. With relevant waveform, describe the resume state in USB.

(5+3+2)

- 3A. Describe functions of each layer in the Ethernet protocol stack.
- 3B. Compare the features of following cables: Twisted pair, Fiber optic and Co-axial cable
- 3C. Describe wireless Ethernet.

(5+3+2)

- 4A. Describe the sequence of operations performed by a computer to send and receive a message using UDP in an Ethernet network.
- 4B. Explain how file can be transferred using FTP
- 4C. How does Validating the data helps in securing devices and local network.

(5+3+2)

- 5A. Describe any five key design challenges needs to be addressed by routing protocol.
- 5B. Explain the TDoA techniques used for localization estimation in wireless sensor networks.
- 5C. Explain the principles of pull and push diffusion in wireless sensor networks.

(5+3+2)