Reg. No.										

MANIPAL INSTITUTE OF TECHNOLOGY

MANIPAL

A Constituent Institution of Manipal University

V SEMESTER B.TECH. (MECHATRONICS ENGINEERING)

END SEMESTER EXAMINATIONS, DEC/JAN 2017

SUBJECT: COMPUTER NETWORKS AND COMMUNICATION PROTOCOL [MTE 4010]

REVISED CREDIT SYSTEM

Time: 3 Hours MAX. MARKS: 50

Instructions to Candidates:

- Answer **ALL** the questions.
- Missing data may be suitable assumed.

1A. Explain Time division multiplexing with an example and required sketches. **4**

1B. Answer the following :

(i). If a binary signal is sent over a 3-kHz channel whose signal-to-noise ratio is 20 dB, what is the maximum achievable data rate? **4**

(ii). What is the purpose of dotted decimal representation ? Give dotted decimal representation of the IP address 11011101 10001111 11111101 00001111.

1C. The message 11001001 is to be transmitted using the CRC polynomial x^3 + 1 to protect it from errors. The message that should be transmitted is:_____. **2**

2A. Explain about TCP/IP Reference Model with suitable diagram. **4**

2B. When bit stuffing is used, is it possible for the loss, insertion, or modification of a single bit to cause an error not detected by the checksum? If not, why not? If so, how? Does the checksum length play a role here? **3**

2C. When a file is transferred between two computers, two acknowledgement strategies are possible. In the first one, the file is chopped up into packets, which are individually acknowledged by the receiver, but the file transfer as a whole is not acknowledged. In the second one, the packets are not acknowledged individually, but the entire file is acknowledged when it arrives. Discuss these two approaches. **3**

3A. List main 5 differences between Circuit switching & Packet switching. **5**

3B.	What are the different types of cabling supported by Ethernet standard?	**3**
3C.	Differentiate between Link State and Distance Vector routing algorithms.	**2**
4A.	Define SNMP and explain its working function.	**3**
4B.	List any 5 general issues expected in the management of large network.	**3**
4C.	Explain about ATM reference model & its layers in brief with its block diagram.	**4**
5A.	Consider a router is blasting out IP packets whose total length (data plus header) is 1024 bytes. Assuming that packets live for 10 sec, what is the maximum line speed the router can operate at without danger of cycling through the IP datagram ID number space?	**2**
5B.	Mention any 4 factors affecting QoS Parameters.	**4**
5C.	Explain about masking and subnetting with suitable diagrams.	**4**