

MANIPAL INSTITUTE OF TECHNOLOGY MANIPAL

A Constituent Institution of Manipal University

V SEMESTER B.TECH. (COMPUTER SCIENCE & ENGINEERING) END SEMESTER EXAMINATIONS, NOV/DEC 2016

SUBJECT: COMPUTER NETWORKS [CSE 3103]

REVISED CREDIT SYSTEM (26/11/2016)

Time: 3 Hours

MAX. MARKS: 50

Instructions to Candidates:

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

1 A .	Explain the usage of control connection and data connection in the FTP model	4M
1B.	With a diagram explain the concept of Network Virtual Terminal character to address the heterogeneity in TELNET	4M
1C.	A new application is to be designed using client server paradigm. If only small messages need to be exchanged between client and server without concern for message loss or corruption, what transport layer protocol do you recommend? Justify your answer	2M
2A.	With the FSM diagram explain the different states of the sender and receiver for the stop-and wait protocol.	5M
2B.	Briefly explain how acknowledgements are generated and used in a TCP connection for the error and flow control.	3М
2C.	TCP opens a connection using an initial sequence number (ISN) of 14,534. The other party opens the connection with an ISN of 21,732. a. Show the three TCP segments during the connection establishment. b. Show the contents of the segments during the data transmission if the initiator sends a segment containing the message "Hello dear customer" and the other party answers with a segment containing "Hi there seller."	2M
3A.	With a header format briefly explain the different fields of TCP.	5M
3B.	Discuss the principle of hierarchical address (two level) and its implementation in class A IPV4 addressing.	3М
3C.	In a datagram, the M bit is zero, the value of HLEN is 5, the value of total length is 200, and the offset value is 200. What is the number of the first byte and number of the last byte in this datagram? Is this the last fragment, the first fragment, or a	2M

middle fragment?

4A.	With diagrams explain the reverse path forwarding and reverse path broadcasting algorithms to construct a source based multicast tree.	5M
4B.	With an example explain how trace route program uses different ICMP messages to trace the route between a source & destination with a distance of 3 hops.	3М
4C.	With a diagram explain the usage of different parts of Global Unicast address in IPV6 to identify the host	2M
5A.	With a flow diagram explain the working of CSMA/CD MAC protocol.	5M
5B.	With a diagram explain how mobile host can communicate with a remote host after registration.	3М
5C.	Calculate the maximum data rate of a transmission line with a bandwidth of 4KHz and signal to noise ratio is 1023.	2M