Reg. No.										

Manipal Institute of Technology, Manipal

(A Constituent Institute of Manipal University)

VI SEMESTER B.TECH (COMPUTER SCIENCE AND ENGINEERING)

END SEMESTER EXAMINATIONS, MAY 2016

SUBJECT: NETWORK PROTOCOLS [CSE 304]

REVISED CREDIT SYSTEM

Time: 3 Hours DATE: 13-05-2016 MAX. MARKS: 50

Instructions to Candidates:

- Answer **ANY FIVE FULL** the questions.
- Missing data, if any, may be suitably assumed.

1A. An ISP is granted a block of addresses starting with 211.17.180.0/23. The ISP needs to distribute these addresses to 2 groups of customers as follows. The first group has 4 customers; each needs approximately 50 addresses. The second group has 8 customers; each needs approximately 12 addresses. Design the subblocks and give the slash notation for each subblock. 5M

1B. In classless addressing, explain any 3 blocks of addresses reserved for special purposes. 3M

1C. With an example, explain Proxy ARP. 2M

2A. With the format, explain record route option. A datagram while travelling from source to destination, passes through routers with outgoing IP addresses 140.10.6.3, 200.14.7.9 and 138.6.22.26. Show the entries in the datagram as it travels from router to router. 5M

2B. In the ICMP, explain how Timestamp Request and Reply options are used to calculate round trip time. Also give the format of the option. 3M

2C. In a host there is only one UDP but several processes that want to use the services of UDP. Explain how UDP handles this situation. 2M

3A. A client establishes a TCP connection with a server. Client ISN = 5000 and Server ISN = 12000. After the connection is established, the client sends 500 bytes of data to the server. The server acknowledges this segment. The client sends another 200 bytes to the server. Again the server acknowledges this segment. Show all the segments for the Data Transfer. 5M

3B. In TCP initial value of retransmission timeout, RTO = 10 secs. After first measurement, the measured value of Round trip time, RTT = 1.5 secs. After a second measurement, RTT = 2.5 secs. Calculate the new value of RTO. 3M

3C. In TCP, explain the role of the Persistence Timer. 2M

4A. With diagrams compare a TCP segment and an SCTP packet. List the differences between them. 5M

4B. In SCTP, at a receiver site chunks 21, 22 and 23 have been received in order and yet to be read by the process. Last acknowledgement was sent for chunk 20. Available window size is 1000 bytes. Chunks 26 to 28 and 31 to 34 have been received out of order. Chunks 22 and 31 are received in duplicate. Show the contents of the receiving queue and the variables. Also show the contents of the SACK chunk that will be sent by the receiver. 3M

4C. With a diagram explain Simultaneous close in SCTP. 2M

5A. With formats, explain question record and resource record in DNS. 5M

5B. Explain the 3 modes of operation in Telnet. 3M

5C. FTP uses the services of TCP and needs 2 TCP connections. Explain the purposes of the 2 connections. 2M

6A. With a diagram, explain the 3 phases a mobile host goes through while communicating with a remote host. 5M

6B. With a diagram, explain the format of the HTTP request message. 3M

6C. Explain the 3 address types in IPv6. 2M

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