SIXTH SEMESTER B.TECH.(COMPUTER SCIENCE & ENGINEERING)
DEGREE END-SEMESTER EXAMINATION- MAY- 2014
SUBJECT: NETWORK PROTOCOLS (CSE-304)
DATE: 07-05-2014

TIME: 3 HOURS   MAX.MARKS: 50

Instruction to Candidates
- Answer any **FIVE** full questions.

Q1A. An ISP is granted a block of addresses starting with 120.60.4.0/20. The ISP wants to distribute these blocks to 100 organizations with each organization receiving 8 addresses only. Design the subblocks and give the slash notation for each subblock. Find out how many addresses are still available after these allocations.

Q1B. One of the addresses in a block is 167.199.170.82/27. Find the number of addresses in the network, the first address, and the last address.

Q1C. Explain Limited Broadcast Address and Direct Broadcast Address in Ipv4.

[5+3+2]

Q2A. An IP datagram has arrived with the following information in the header (in hexa-decimal):

45 00 00 54 00 03 00 00 20 06 00 00 7C 4E 03 02 B4 0E 0F 02

a. Are there any options?

b. Is the packet fragmented?

c. What is the size of the data?

d. Is a checksum used?

e. How many more routers can the packet travel to?

f. What is the identification number of the packet?

g. What is the type of service?

Q2B. A router with IP address 195.5.2.12 and Ethernet physical address

AA:25:AB:1F:67:CD has received a packet for a destination with IP address

185.11.78.10. When the router checks its routing table, it finds out the packet

should be delivered to a router with IP address 195.5.2.6 and Ethernet physical

address AD:34:5D:4F:67:CD.

a. Show the entries in the ARP request packet sent by the router. Assume no

subnetting.

b. Show the entries in the ARP packet sent in response to part a.

c. Encapsulate the packet made in part a in the data link layer. Fill in all the fields.

d. Encapsulate the packet made in part b in a data link frame. Fill in all the fields.

Q2C. Explain with neat diagram,how we can create a subnetting effect using Proxy ARP?

[5+3+2]

Q3A. What are the inefficiencies in Mobile IP.? What is the solution to it? Explain in

detail with neat diagrams.

Q3B. Can the calculated sending time, receiving time, or round-trip time have a negative

value? Why or why not? Give examples.

Q3C. Host A sends a timestamp-request message to host B and never receives a reply.

Discuss three possible causes and the corresponding course of action.

[5+3+2]

Q4A. 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."

c. Show the contents of the segments during the connection termination.

Q4B. Give the expressions for Measured RTT(Round Trip Time), Smoothed RTT, RTT- Deviation. How Retransmission Time-out(RTO) is calculated in TCP? Explin in detail.

Q4C. Explain Byte and Sequence numbering in TCP.

[5+3+2]

Q5A. Explain SCTP Association Establishment with four-way handshaking with suitable diagram.

Q5B. Discuss the Distribution of Name Space with explanations on Hierarchy of Name Servers,Zone,Root Server,Primary and Secondary Server.

Q5C. Write an explanatory Note on Network Virtual Terminal(NVT).

[5+3+2]

Q6A. Explain Control Connection and Data Connection in FTP with necessary Diagrams.

Q6B. Explain Address Space Allocation in IPV6 with neat Diagram.

Q6C. Explain briefly Nonpersistent Connection and Persistent Connection in HTTP.

[5+3+2]

****