MANIPAL INSTITUTE OF TECHNOLOGY

MANIPAL

A Constituent Institution of Manipal University

V SEMESTER B.TECH. (COMPUTER AND COMMUNICATION ENGINEERING)

END SEMESTER EXAMINATIONS, NOV/DEC 2016

SUBJECT: HIGH SPEED COMMUNICATION NETWORKS AND PROGRAMMING [ICT 3152]

REVISED CREDIT SYSTEM
(26/11/2016)

Time: 3 Hours   MAX. MARKS: 50

Instructions to Candidates:

❖ Answer **ALL** the questions.

❖ Missing data may be suitably assumed.

1A. Write pseudo-code of client server model to demonstrate chat application using TCP.   5

1B. An IP packet consists of 20 bytes of header and 1500 bytes of payload. Now suppose that the packet is mapped into ATM cells that have 5 bytes of header and 48 bytes of payload. How much of the resulting cell stream is header overhead?   3

1C. What is the structure of label in MPLS?   2

2A. What would be the differences of IP packet in MPLS network in comparison with normal network? Also explain the importance of Label Forwarding Information Base in MPLS.   5

2B. Assume the server sets the SO_KEEPALIVE socket option, there is no data being exchanged across the connection, and the client host crashes and does not reboot. Explain what happens to the server for the given scenario?   3

2C. A fiber optical cable with the length of 500m has Pin = $10\mu W$ and Pout = $9\mu W$. Find loss in dB/Km.   2

3A. List and explain all ATM network interfaces and ATM cell header for UNI.   5

3B. Write a client side pseudo-code to send "Hi", "Hello" and "HSCN" messages to the server in a single packet. The server is using 172.16.53.200 and 1234 and client uses 172.16.53.1 and 2345 as IP address and port number respectively. Here client and server are using connection oriented communication for sending and receiving the messages.   3

3C. Convert 224.200.10.1 multicast IPv4 to multicast IPv6 and multicast MAC address.   2

4A. How does IPv4 client and IPv6 server communicate each other? Explain with suitable diagram and example. — 5

4B. How does reservation style play important role in RSVP? List different mechanisms of reservation. — 3

4C. What would be the result of transmission degradation in optical fiber? — 2

5A. Complete the levels and describe the sequence of DTLs that are used in setting up a connection from B.2.2 to A.2.2 in Figure Q.5A. (Thick line denotes shortest path tree)
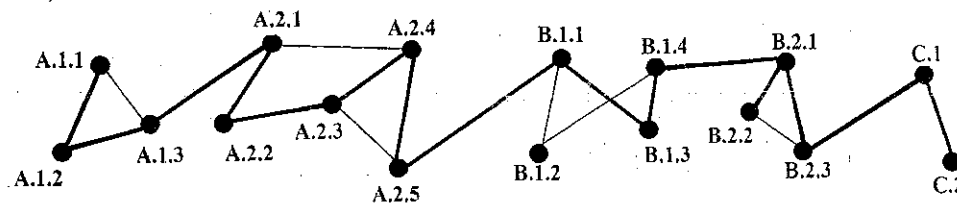

Figure Q.5A

— 5

5B. Compare first, second and third generation optical fiber. — 3

5C. Give syntax and structure of *getservbyname* and *getservbyport* system calls. — 2