Reg. No.										

MANIPAL INSTITUTE OF TECHNOLOGY

MANIPAL

(A constituent unit of MAHE, Manipal)

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

END SEMESTER EXAMINATIONS, NOV 2019

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

REVISED CREDIT SYSTEM

(18/11/2019)

Time: 3 Hours MAX. MARKS: 50

Instructions to Candidates:

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

1A. Write a timeline diagram for elementary TCP client-server communication model. Explain the syntax and parameters used at server side. **5**

1B. Specify the QoS and Traffic descriptor parameters required for establishing a conference video call among 3 users? What is the difference between MBS and PCR? **3**

1C. DiffServ is normally called a source based service. Explain the reason. **2**

2A. Suppose RSVP is used to set up a virtual private network to interconnect *n* users across an internet. With neat diagram demonstrate the working of three RSVP reservation styles. (Note: Make use of 3 sender and 3 Rx default scenarios as shown in the **Figure Q.2A** to demonstrate the reservation styles)

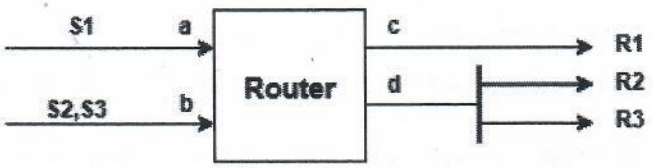

Figure Q. 2A **5**

2B. Demonstrate the working of multicast communication using UDP datagram. List all the socket options supported by the multicast communication? **3**

2C. What are the numerous way to start daemon processes? Explain with example. **2**

3A. List three types of ATM network Interface and explain with neat diagram how signalling messages are involved in connection setup and release? **5**

3B. How does getservbyname and getservbyport system calls provide the details of server? Show all the fields with the information it contains. **3**

3C. With neat diagram explain how concurrent server handles multiple clients at the same time. **2**

4A. The MPLS specification allows an LSR to use a technique known as *penultimate hop popping (php).*

i) What is the advantage of penultimate hop popping?

ii) Explain why LSRs in the MPLS network need not examine or process the IP header but rather simply forward each packet based on its label value.

iii) Create an Label Forwarding Information Base(LFIB) table for the path R4 => R3 => R2 => R1 as shown in Figure **Q.4A**

iv) Which MPLS node in the network control overload situation? Explain the technique to control the overload situation. **5**

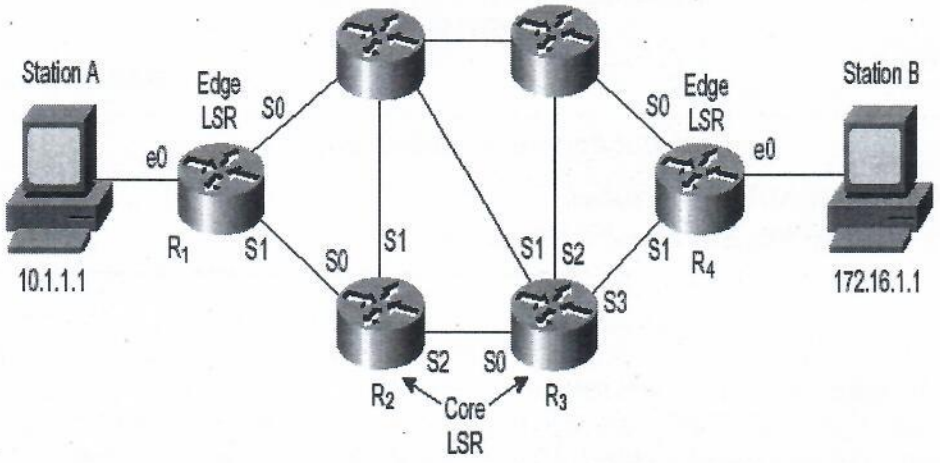

Figure Q.4A

4B. Explain the AAL process which supports services that require the transfer of information at constant rate. Find the overhead for 4700 bytes packet. **3**

4C. How do you communicate from a IPv6 client to a IPv4 server using Unix sockets? **2**

5A. List and explain the usage of different IPv4 Socket options. **5**

5B. Fiber optics is a medium for carrying information from one point to another in the form of light.

i) With necessary schematic diagram, explain basic fiber optic communication system.

ii) A fiber of 100-m length has Pin= 10 μW and Pout = 9 μW. Find the loss in dB/km. **3**

5C. Write a client side pseudo-code to send "Data", "Computer" and "Communication" 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. **2**