Reg. No.										

MANIPAL INSTITUTE OF TECHNOLOGY, MANIPAL 576104

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FIFTH SEMESTER B.TECH. (IT) DEGREE MAKE UP EXAMINATION, JAN– 2015
SUBJECT: COMPUTER NETWORKS – ICT-305
(REVISED CREDIT SYSTEM)

TIME: 3 HOURS **06/01/2015** **MAX. MARKS: 50**

Instructions to candidates
Answer any **FIVE FULL** questions.
Missing data, if any, may be suitably assumed.

1A. What is silly window syndrome? How does it affect the performance of the system? What is the solution to overcome this problem in a communication system?

1B. A window holds bytes 2001 to 5000. The next byte to be sent is 3001. Draw a figure to show the situation of the window after the following two events.
   a. An ACK segment with the acknowledgment number 2500 and window size advertisement 4000 is received.
   b. A segment carrying 1000 bytes is sent.
   c. What is the new rwnd size ?

1C. A multicast address for a group is 234.25.60.9. What is its 48-bit Ethernet address? [5+3+2]

2A. Explain the state transition diagram for Transmission Control Protocol.

2B. Find the shortest path using dijkstra's algorithm from the node 1 to all the other nodes as shown in the Figure 2B.

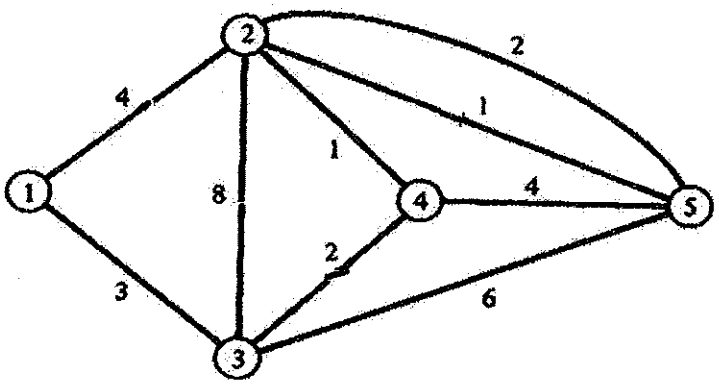

Figure 2B.

2C. State the significance of Time exceed and Redirection ICMP messages [5+3+2]

3A. Explain with a neat diagram IPv4 Datagram.

3B. Illustrate the difference between network topology and Network Topography.

3C. List the different ranges of port numbers defined by ICANN? [5+3+2]

4A. An ISP is granted a block of address 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 sub blocks and give the slash notation for each sub block. Find out how many addresses are still available after these allocations.

4B. Explain the different types of timers used in TCP.

4C. State the difference between Transmission Sequence Number (TSN), Stream Sequence Number(SSN) and Stream Identifier (SI). [5+3+2]

5A. Show the routing table for regional ISP, local ISP 1 and local ISP 2 in figure Q. 5A.

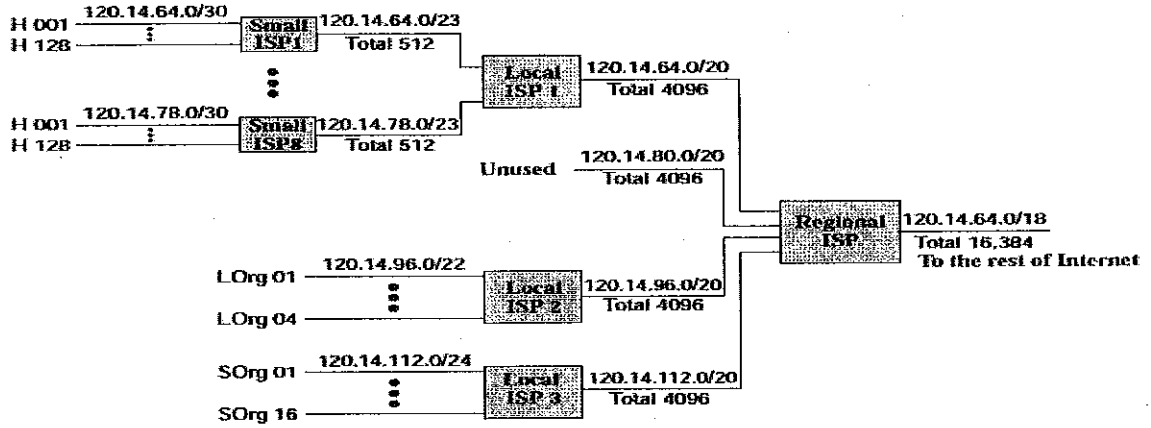

figure Q. 5A.

5B. Explain the trade-off between the virtual circuit and datagram subnet.

5C. Discuss the consequences if a connection fails among six devices arranged in a ring topology. State a solution to overcome these consequences [5+3+2]

6A. What are the reasons for using layered architecture? Explain ISO-OSI reference model.

6B. Six stations (S1-S6) are connected to an extended LAN through transparent bridge (B1 and B2), as shown in Figure Q.6B. Initially, the forwarding tables are empty. Suppose the following stations transmit frames: S2 transmits to S1, S3 transmits to S5, S1 transmits to S5, S6 transmits to S5, S3 transmits to S4 and S5 transmits to S3. Fill in the forwarding tables with appropriate entries after the each frame have been completely transmitted.

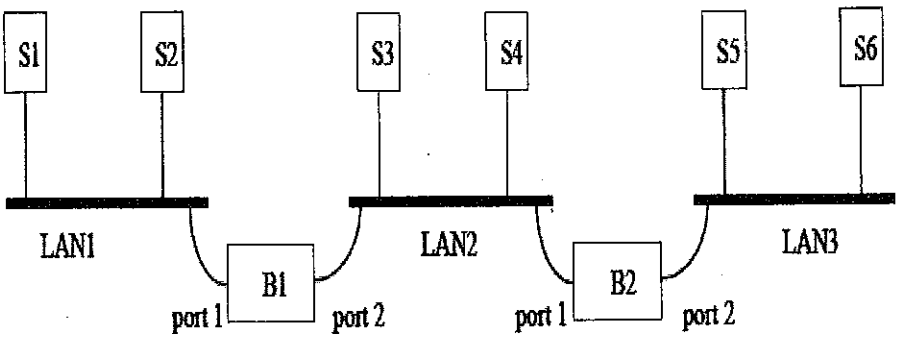

Figure Q.6B

6C. State the difference between p-persistent, n-persistent and 1-persistent CSMA. [5+3+2]

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