Reg. No.										

MANIPAL INSTITUTE OF TECHNOLOGY

MANIPAL

A Constituent Institution of Manipal University

I SEMESTER M.TECH. (COMPUTER NETWORKING AND ENGINEERING)

MAKEUP EXAMINATIONS, DEC 2017/JAN 2018

SUBJECT: COMMUNICATION NETWORK PROTOCOLS [ICT 5101]

REVISED CREDIT SYSTEM
(20/12/2017)

Time: 3 Hours MAX. MARKS: 50

Instructions to Candidates:

- Answer ALL the questions.
- Missing data, if any, may be suitably assumed.

1A. Silly window syndrome is a drawback in TCP. With a scenario, explain the occurrence of silly window syndrome and the algorithms developed to address it. 5

1B. For the graph shown in Fig.Q.1B, identify the different phases of congestion control and the operating interval. 3

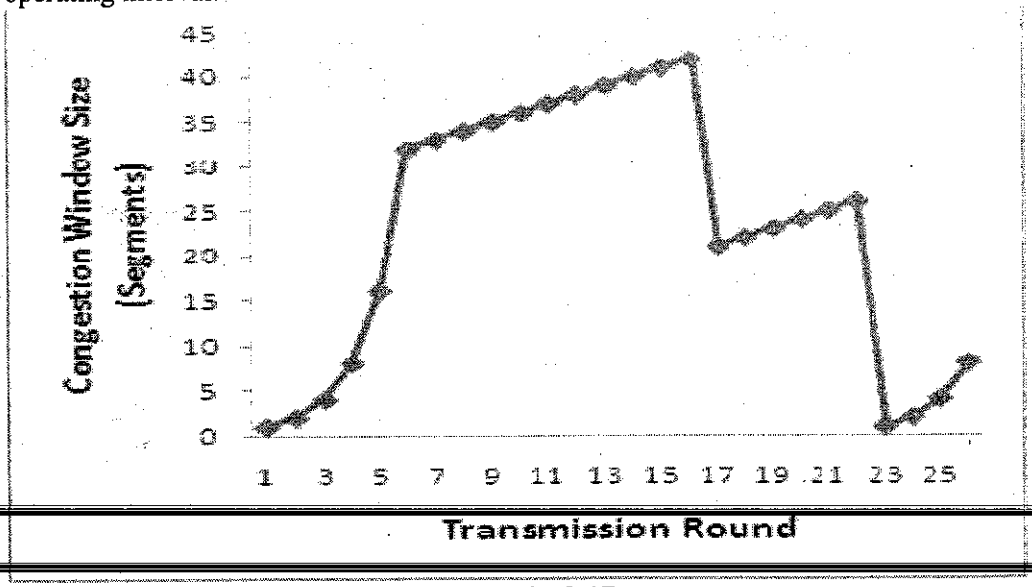

Fig.Q.1B

1C. Using the CIDR notation, show the IPv6 address mapped to the IPv4 address 129.6.12.34 2

2A. Consider the scenario of a network shown in Fig.Q.2A for path vector routing. Write the path vector routing table for each router after all three routers have updated their routing table. 5

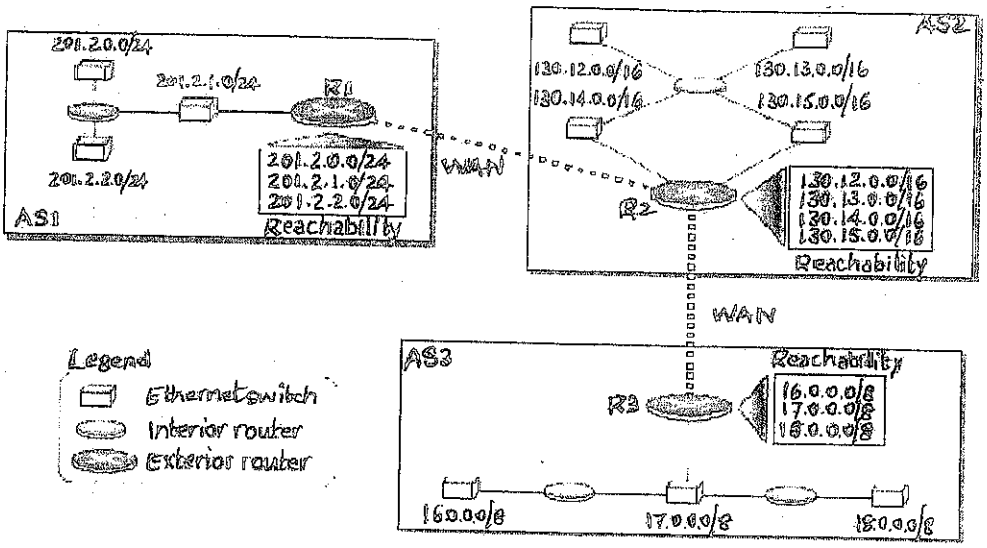

Fig.Q.2A

2B. An ISP has assigned the IP Address block 218.117.80.0/20 to MIT. With this block, how many subnets of 32 addresses can be created? What is the range of addresses of the first and the last subnet? 3

2C. Discuss the use of raw sockets in OSPF. 2

3A. Compare the state transition diagram of TCP server and SCTP server. Discuss the important feature that has improved the performance of the SCTP. 5

3B. An SCTP client opens an association using an initial tag of 806, an initial TSN of 14534, and a window size of 20000. The server responds with an initial tag of 2000, an initial TSN of 670, and a window size of 14000. If the client sends 7600 data chunks and the server sends 570 data chunks, show the contents of the three packets exchanged during association termination. 3

3C. Why is there no need for the IGMP message to travel outside its own network? 2

4A. Describe the necessity of protocol independent multicast routing protocols and its operation. 5

4B. Change the following IP multicast addresses to Ethernet multicast addresses. How many of them specify the same Ethernet address? 3

i. 224.18.72.8
ii. 235.18.72.8
iii. 237.18.6.88
iv. 224.88.12.8

4C. A computer receives a timestamp request from another computer at 2:34:20 P.M. The value of the original timestamp is 52,453,000. If the sender clock is 5 ms slow, what is the one-way time? 2

5A. Write server side program to set up a connection between two machines using TCP sockets. Write the syntax of system calls used to set and get socket options. 5

5B. Show with an example that the hierarchical routing reduces the size of the routing table. 3

5C. Show the computation of retransmission time out timer in TCP. 2