COURSE CODE: 10B11EC611   MAX. MARKS: 35

COURSE NAME: TELECOMMUNICATION NETWORKS

COURSE CREDITS: 4   MAX. TIME: 2 HRS

Note: All questions are compulsory. Carrying of mobile phone during examinations will be treated as case of unfair means.

Q 1. Briefly answer the following   (5)

a) A network has a subnet address of 255.255.240.0. What is the maximum number of hosts it can support?

b) If a switch receives a frame and the source MAC address is not in the MAC address table but the destination address is, what will the switch do with the frame?

c) Routers operate at layer _____. LAN switches operate at layer _____. Ethernet hubs operate at layer _____. Word processing operates at layer _____.

d) A 4Mbps token ring has a token holding time value of 10msec. What is the longest frame that can be sent on this ring?

e) Imagine 2 LAN bridges, both connecting a pair of 802.4 networks. The first bridge is faced with 100 512 byte frames per seconds that must be forwarded. The second is faced with 200 4096 byte frame per second. Which bridge do you think will need the faster CPU?

Q2.a) What is the difference between a hub, switch, and router ?   (2)

b) An organization has been assigned network address 196.35.1.0/24. The maximum number of hosts a subnet can be required to support is 20.   (5)

i. Specify the length of subnet address that will allow creation of 20 hosts in each subnet.

ii. What is the maximum number of hosts that can be supported in each subnet?

iii. What is the maximum number of subnets?

iv. Write the subnet address in dotted decimal notation.

v. What is the broadcast address of subnet 196.35.1.192?

Q3 a) What is the advantage of token passing protocol over CSMA/CD protocol?   (2)

b) Detail the frame format of IEEE 802.3 and 802.2(LLC).   (5)

Q4 a) An address in a block is given as 210.91.85.15. Find the number of addresses in the block, class of addressing, the first address, and the last address. (2)

b) Detail the functions of network layer, and elaborate the components required to set up a Local Area Network. (5)

Q5 a) Brief various classes in Classful addressing in IPv4. (3)

b) Explain the two techniques for implementing Ethernet switches. (3)

c) Consider the arrangement of transparent bridges as in fig. Initially all the bridge tables are empty. Draw the bridge table for each bridge after the following transmission (3)

(i) A sends frame to C   (ii) C sends frame to A   (iii) D sends frame to C.