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Long Session

Roll No.:

National Institute of Technology, Delhi

~~END~~ Semester Examination: B. Tech.

Branch : ECE
Title of the Course : Computer Networks

Semester : VI
Course Code : CSB 304

Time: 3 Hours

Maximum Marks: 50

Section A

Answer all the questions

[One Marks Each]

1. What are some of the factors that determine whether a communication system is a LAN or WAN.
2. Compare telephone network and internet. What are the similarities? What are the difference?
3. Distinguish between data rate and signal rate.
4. Explain different classes of transmission media.
5. List four major components of a packet switch and their function.
6. Compare and contrast a circuit-switched network and packet-switched network.
7. Distinguish between a point-to-point link and broad cost link.
8. Compare and contrast byte-stuffing and bit-stuffing. Which technique is used in byte oriented & bit oriented protocol.
9. What is line coding? How does NRZ-L differ from NRZ-I?
10. What are the common Ethernet standards. Also draw frame format for 802.3 MAC frame.

Section B

Attempt Any Four Question

[Four Marks Each]

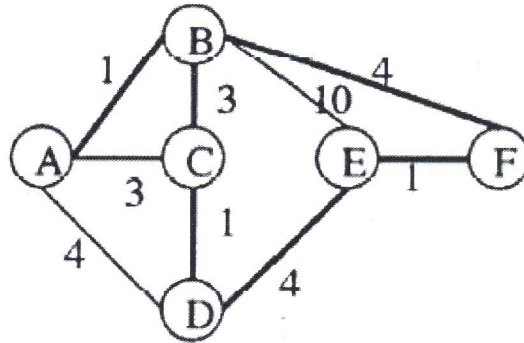
11. Define networks. Explain different topology of the networks.
12. What is multiplexing ? Explain frequency division multiplexing. List advantage and disadvantage of the FDM. Assume that a voice channel occupies a bandwidth of 4 kHz. We need to combine three voice channels into a link with a bandwidth of 12 kHz, from 20 to 32 kHz. Show the configuration, using the frequency domain. Assume there are no guard bands.
13. How CSMA/CA works? Draw and explain the header format of CSMA/CA. A network using CSMA/CD has a bandwidth of 10 Mbps. If the maximum propagation time (including the delays in the devices and ignoring the time needed to send a jamming signal, as we see later) is 25.6 μ s, what is the minimum size of the frame?
14. Discuss sliding window protocol using Go back n. Also explain window size in Go back n is always less than 2^m .
15. Explain Bluetooth in details. Also explain fuction of the differen layers used in Bluetooth, Frame format of the Bluetooth.

Section C

Attempt Any Two Question

[Ten marks Each]

16. Explain the ISO-OSI model of computer network with a neat diagram.
17. What is the basic feature of the routing algorithm? Explain distance vector routing in detail. Consider the network shown in the Fig. Using distance vector routing show the routing table for node A and E after first iteration of the algorithm shown in the Fig.



18. What is IP6 frame format? What are the deficiencies of IPv4. Give the advantage of IPv4 and IPv6 packet header. Show that how an IPv6 packet header converted to IPV4 packet header.