

# 2002 SCHEME

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CS64

## Sixth Semester B.E. Degree Examination, December 2010 Computer Networks – I

Time: 3 hrs.

Max. Marks:100

**Note: Answer any FIVE full questions.**

1. a. An alternative to LAN is simply a big time sharing system with terminals for all users. Give two advantages of a client server system using LAN. Draw a block diagram of client – server model. (05 Marks)  
b. Imagine that you have trained a dog to carry a box of three 8 mm tapes, each containing 7 gigabytes. The dog can travel to your side, wherever you may be, at 18 km/hour. For what range of distances does the dog has a higher clock rate than transmission line whose data rate is 150 Mbps? (05 Marks)  
c. How is the internet useful for home users? (05 Marks)  
d. Explain the terms : repeater, bridge, router and gateway. (05 Marks)
2. a. Explain spanning tree algorithm for bridged LAN. (05 Marks)  
b. Draw IEEE 802.3 MAC frame structure and explain. (05 Marks)  
c. Use 802.3 and IEEE 802.11 to discuss the differences between wired and wireless LAN. (05 Marks)  
d. Suppose that 80% of the traffic generated in a LAN is for the stations in the LAN and 20% is for the stations outside the LAN. Is an Ethernet hub preferable to an Ethernet switch? Does the answer change if the percentages are reversed? (05 Marks)
3. a. Why we can't have a CSMA/CD in wireless LAN? Explain CSMA/CA operation in wireless LAN. (05 Marks)  
b. Convert the IP address whose hexadecimal representation is C22F1582 to dotted decimal notation. (05 Marks)  
c. For a hierarchical routing with 4800 routers, what region and cluster size should be chosen to minimize the routing table for a 3 tier hierarchy? How many entries would be required for normal case? (05 Marks)  
d. Explain network address translation (NAT). (05 Marks)
4. a. Explain count to infinity problem in case of distance vector routing. (05 Marks)  
b. Compare virtual circuits and datagram subnet. (05 Marks)  
c. How do computer networks differ? (05 Marks)  
d. A large number of consecutive IP addresses are available starting at 198.16.0.0. Suppose that four organizations A, B, C and D request 4000, 2000, 4000 and 8000 addresses respectively in that order. For each of these, give the first IP address assigned and mask in the w.x.y.z/s notation. (05 Marks)

5. a. Imagine a flow specification that has maximum packet size of 1000 bytes, a token bucket rate of 10 million bytes/sec, a token bucket size of 1 million bytes, and a maximum transmission rate of 50 million bytes/sec. How long can a burst at maximum speed last? (05 Marks)
- b. Give two examples of computer applications each for connection oriented and connectionless service. (05 Marks)
- c. Briefly explain the Quality of Service (QoS) parameters in ATM. (05 Marks)
- d. Identify the components that contribute to the end – to – end delay experienced in setting up an ATM connection using PNNI. (05 Marks)
6. a. What is the bandwidth – delay product for a 50 Mbps channel on a geostationary satellite? If the packets are 1500 bytes (including overhead), how big should the window be in packets? (05 Marks)
- b. R.T.P. is used to transmit CD quality audio, which makes a pair of 16 bit samples 44100 times/sec, one sample for each of the stereo channels. How many packets per second RTP must transmit? (05 Marks)
- c. Draw TCP segment header and explain. (05 Marks)
- d. Explain dynamic buffer allocation. (05 Marks)
7. a. Explain how three way handshake for releasing connection perform i) when response is lost ; ii) when response lost and subsequent DRs lost. (05 Marks)
- b. List out some of the potential pitfalls while measuring network performance and parameters. (05 Marks)
- c. List out Berkley Socket primitives. Which primitives are used only by server? Why? (05 Marks)
- d. A client sends a 128 byte request to a server located 100 km away, over a one gigabit network. What is the efficiency of the line during the remote procedure call? (05 Marks)
8. Write short notes on :
- a. Layered network architecture. (05 Marks)
- b. Token ring network. (05 Marks)
- c. Tunneling. (05 Marks)
- d. Protocols for gigabit networks. (05 Marks)

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