2002 SCHEME

USN | | | | | | | | | | |

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 doted 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 byes (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)**

* * * * *