

CMPE 344/ CMSE 346 - COMPUTER NETWORKS – EXERCISE QUESTIONS

Q.1) Fill in the blanks Questions

Q.2) Multiple choice Questions

Q.3) What is the maximum data rate that can be achieved over a 3 kHz voice grade line with a signal to noise ratio of 30 dB? [Hint: $C = B \log_2(1 + S/N)$; $dB = 10 \log_{10}(S/N)$]

Q.4) If the minimum packet size for the 802.3 LAN standard is 64 bytes and the data rate of the network is 10 Mbps, then what does this indicate about τ , the propagation delay, for such a network?

Q.5) Assume that a packet has to traverse various networks in its path from the source to the destination host and that each network has a different size for the maximum transmission unit. This situation will likely cause fragmentation of the packet to be needed. What is an advantage of doing reassembly of fragments at the destination host versus doing it as the packet travels across each network?

Q.6)

- What is the principal difference between circuit switching and virtual circuit switching?
- Give an advantage of datagrams over virtual circuits
- Give an advantage of virtual circuits over datagrams.

Q.7) Explain briefly

- ARP
- TTL
- DHCP

Q.8) Draw a diagram to illustrate the layered architecture of the Internet. Write down the name of each layer and indicate the protocol(s) used at each layer.

Q.9) The following is a routing table using CIDR. Address bytes are in hexadecimal. The notation “/12” in C4.50.0.0/12 denotes a netmask with 12 leading 1-bits, ie FF.F0.0.0. Note that the last three entries cover every address and thus serve in lieu of a default route.

<u>net/masklength</u>	<u>nexthop</u>
C4.50.0.0/12	A
C4.5E.10.0/20	B
C4.60.0.0/12	C
C4.68.0.0/14	D
80.0.0.0/1	E
40.0.0.0/2	F

State to what next hop the following will be delivered.

- C4.5E.13.87
- C4.5E.22.09
- C3.41.80.02
- 5E.43.91.12
- C4.6D.31.2E
- C4.6B.31.2E