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1) Multiple choice {answer.four.of.the.following.five.questions}:

a) When a host in network N1 sends a message to another host on network N2, which address does the router look at? (a) port   (b) physical   (c) socket   (d) logical (e) none of the above

b) One of the following is wrong logical address:

  (a) 1.1.1.0   (b) 111.00.00.100   (c) 12.100.256.199   (d) 12.100.100.222   (e) none

c) Which of the following can be an Ethernet physical address?

  a) 07:01:02:01:2C:4B:2C   b) 01:02:01:2C:4B

  c) 07:01:02:01:2C:4B   d) None of the choices are correct

d) HFC cable network allocates .... channels for downstream. (a) 32 (b) 33   (c) 24 (d) 37   (e) 64

e) Bluetooth is: (a) point-to-point LAN   (b) wireless LAN

                    (c) wired LAN   (d) wireless WAN   (e) none of these

2) Explain briefly: (a) In 3 lines or less explain what is IEEE 802.3.. (b) What is IEEE 802.11 {explain.briefly.in.9.-.0.lines}?   (c) Write down the differences between CSMA/CD and CSMA/CA? (d) What is the minimum frame length in Ethernet and why Ethernet frame should have a minimum length?

3) Write the layer for each of the following: (a) provides user services such as e-mail and file transfer. (b) route selection. (c) reliable process-to-process message delivery (d) transmission of bit stream across physical medium. (e) defines frames.

4) Transmission and propagation {answer two from these three 5a, 5b, 5c}: (5a) Suppose the path between two hosts h1 and h2 has three links and the transmission rate of these links are 10 Mbps, 20 Mbps, and 8 Mbps. (i) What is the throughput of this file transfer (assuming no other traffic on these links)?   (ii) Suppose that the file size is 2 MB, roughly, how long will it take to transmit the file across the first link only?   (b)   What would be the transmission rate (R) given that a 120-bytes packet has transmission time 360 micro seconds? (c) What would be the propagation rate (propg. speed) with given the propagation time Tp is $5 *10^{-6}$ seconds, and the length of the link is 1000 meters? Show all steps in details.

5) True or False {answer.four.of.the.following.five.questions}:

a) The logical address is fixed and imprinted on the network interface card (NIC) T/F?

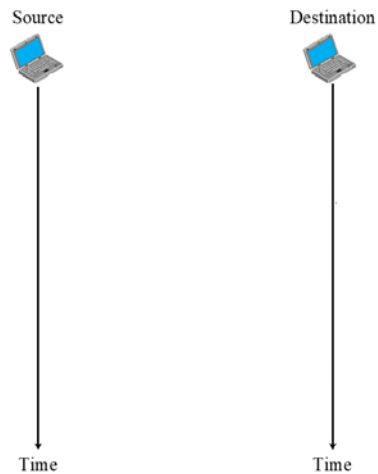b) The first (basic) Ethernet LAN technology is considered switched LAN; T/F?

c) Each interface on a LAN has an IP address and a MAC address; T/F?

d) An ad_hoc network is a BSS without AP, T/F?

e) When data is transmitted (OSI model) from device X to device Y, the header from X's layer 4 is read by Y's Transport layer; T/F?

6) Explain briefly in 2 – 3 lines: (a) Connection-oriented communication means/can be defined as (2 – 3 lines)...... (6b) Explain briefly in 2 – 3 lines: ISP is ········ ᵢ• ᵢ.(6c) Explain briefly the difference between reliable and unreliable communication (in.9.lines.or.less).

7) Draw a simplified messages (packets) exchange scenario in wireless Ethernet LAN (use this diagram).

Source   Destination

Time   Time

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Due: 11:59pm Tue 9/30.

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