ITS 323 – QUIZ 5 (CS) ANSWERS

First name: _____ Last name: _____

ID: _____ Total Marks: _____
out of 10

Question 1 [7.5 marks (1.5 each)]

True or False:

a) The aim of Medium Access Control (MAC) in LANs is to ensure frames (or transmissions) do not collide with each other. T / F

b) Two fields of the IP header are the Source Address and Destination Address. When an IP router receives an IP datagram, it will change the addresses before forwarding on to the next node. T / F

c) The Time To Live (TTL) field in the IP header is used to limit the number of times an IP datagram is forwarded by routers. T / F

d) If using a ring topology for a LAN, a frame transmitted by node A will eventually return to (and be received by) node A. T / F

e) The main difference between a switch and a hub is that a hub can allow two users (computers) to transmit at the same time (whereas a switch cannot). T / F

Answers

True – The normal assumption of a MAC is that a computer cannot successfully receive two frames at the same time (i.e. collision), hence the aim of the MAC is to ensure this doesn't happen (by ensuring only one station transmits at a time).

False – The source address contains the IP address of the Source Computer/Host and the destination address contains the IP address of the Destination Computer/Host. The addresses do not change as the packet is forwarded.

True – The TTL is decreased before being forwarded. If the TTL is 0 it will not be forwarded, instead being discarded by the router.

True – In a ring topology the frame is sent all the way around the ring, and destination computers retrieve only a copy.

False – It is the opposite: Since a frame sent to a switch is only sent to the specific destination (rather than all computers, as with a hub), when one computer transmits, another computer (which isn't the destination) can be transmitting at the same time.

Question 2 [1 mark]

Fill in the word(s) to complete the following sentence:

A _____-based dynamic medium access control scheme allocates transmission opportunities to computers in an ordered pattern, one computer after another.

Answer

Round-robin

Question 3 [1.5 marks]

For each of the following descriptions of IP, indicate which node it best describes by circling the node.

a) IP receives a frame from the Data Link layer, removes the IP header and sends the Data to the Transport layer.

Source Computer Destination Computer Router Switch

b) IP receives a frame from the Data Link layer, determines the next node, and sends the IP datagram to another Data Link layer.

Source Computer Destination Computer Router Switch

c) IP receives Data from the Transport layer, attaches an IP header and sends the IP datagram to the Data Link layer.

Source Computer Destination Computer Router Switch

Answer

a. Destination Computer

b. Router

c. Source Computer