Computer Networks

Started on	Tuesday, 22 February 2022, 8:15 AM
State	Finished
Completed on	Tuesday, 22 February 2022, 8:44 AM
Time taken	29 mins 43 secs
Grade	**12.50** out of 15.00 (**83**%)

Question 1

Correct

Mark 1.00 out of 1.00

Flag question

Which of the following statements are true (choose all that apply)?

Select one or more:

- a. Microwave communication is a type of communication using guided media as it is guided by the position and orientation of the antennas
- b. Single mode fibers will require less number of repeaters over larger distances than multimode fibers ✓
- c. Multimode fibers have higher bandwidth than single mode fibers as it supports multiple modes of communication simultaneously
- d. Twisted pair wires are used in UTP cables to reduce electrical interference ✓

Your answer is correct.

The correct answer is: Single mode fibers will require less number of repeaters over larger distances than multimode fibers, Twisted pair wires are used in UTP cables to reduce electrical interference

Question 2

Correct

Mark 1.00 out of 1.00

Flag question

Which of the following statements is false?

Select one:

- a. The primary purpose of scrambling is to help in synchronizing the receiver with the transmitter
- b. The Manchester Encoding can require twice the bandwidth of the original signal
- c. The primary purpose of using block codes like 4B/5B or 8B/10B is to reduce the bandwidth requirement ✓
- d. In Pseudoternary, bit 1 is encoded as a zero voltage and the bit 0 is encoded as alternating positive and negative voltages

Your answer is correct.

The correct answer is: The primary purpose of using block codes like 4B/5B or 8B/10B is to reduce the bandwidth requirement

Question 3

Correct

Mark 1.00 out of 1.00

Flag question

A protocol sends 25,000 frames in 2 minutes, each frame having an average size of 12,000 bits, over a 10 Mbps link. What is the efficiency/utilization of the link in percentage?

Answer: 25

The correct answer is: 25

Question 4

Correct

Mark 1.00 out of 1.00

Flag question

Consider that 12 digital signals with effective bandwidth of 100 KHz each being transmitted over a FDM system. If the guard band needed is 5% of the effective bandwidth of a channel, what is the total bandwidth needed (in KHz)?

Answer: 1255

The correct answer is: 1255

Question 5

Correct

Mark 1.00 out of 1.00

Flag question

Suppose you have to connect 32 machines in a LAN using 8-port switches only. What is the minimum number of switches that will be needed?

Answer: 5

The correct answer is: 5

Question 6

Correct

Mark 2.00 out of 2.00

Flag question

A signal is sent from a transmitter to a receiver passing through three cascaded (i.e., in series) amplifiers, each with a 7 dB gain. Each hop in the path from the transmitter to the receiver (i.e., from transmitter to first amplifier, from first to second and second to third amplifier, or from the third amplifier to the receiver) incurs a 0.4 dB attenuation. If the transmitted signal has power of 3 Watts, what is the power of the received signal (in Watts)?

Answer: 261.289

The correct answer is: 261.3

Question 7

Incorrect

Mark 0.00 out of 2.00

Flag question

Consider 2 machines using CSMA/CD with binary exponential backoff. Suppose they have already had one collision while trying to transmit. What is the probability that one of them will succeed in transmitting with no further collision?

Answer: 0.75

The correct answer is: 0.5

Question 8

Correct

Mark 2.00 out of 2.00

Flag question

Consider the 5-layer TCP/IP stack. An application is sending a total of 6400 bytes of data over this stack in 8 chunks of 800 bytes each. Each chunk is sent as a single TCP message encapsulated in a single IP packet encapsulated in a single Ethernet frame. The size of the TCP header is 20 bytes, the size of IP header is 20 bytes, and the size of the Ethernet header is 16 bytes. What is the total percentage (of total bits sent) overhead in sending the data?

Answer: 6.54

The correct answer is: 6.54

Question 9

Complete

Mark 2.00 out of 2.00

Flag question

What is meant by the term collision domain in the context of a LAN? What is the collision domain for an Ethernet LAN in which all machines are connected to a switch? (Write only 1 sentence for each)

A collision domain is a set of devices such that simultaneous transmission by any two devices will cause a collision. In case of a switch collision domain is a single machine.

[ANS] Set of machines such that simultaneous transmission by any two machines will cause a collision. Collision domain is one segment (one machine to one port).

Comment:

Question 10

Complete

Mark 1.50 out of 2.00

Error control is said to be part of the functionalities of data link layer and different error control techniques have been taught to you in class. However, TCP/IP networks for communicating between two nodes connected over multiple links use Ethernet in data link layer for each link, and Ethernet has no error control. Can you think why Ethernet does not implement any error control?

Flag question

This is because a frame passes through multiple routers and there may be many places where a packet can be dropped. So instead of taking this responsibility on itself everything is shifted to above layers. This makes it possible to create a common base layer for the above layers in the stack which does not guarantee error control so any changes in the base layer is easy.

[ANS] Even if each link is made error-free by using some error control technique at each link, drops at routers due to buffer overflow etc. can still cause packets to be lost. So end-to-end error control will still be needed.

Comment:
Started correctly but then went vague. Point is that even if Ethernet does it, this will not guarantee no pcket loss end-to-end and higher layers will still need to do this.

Finish review

QUIZ NAVIGATION

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Finish review