

CISC 7334X Final Exam

Pick the best answer that fits the question. 5-points per question. Not all of the answers may be correct. If none of the answers fit, write your own answer.

1. A hard-drive is 720 grams. A truck carrying 10,000kg of 10-terabyte hard-drives across 2000km at 100km/h (assuming no stops) has what capacity per second? (tip: what X terabits/second?)
 - (a) Answer is: _____
2. Polar coding method (as opposed to bipolar coding):
 - a. has an AC component
 - b. has a DC component
 - c. cannot synchronize on every bit
 - d. requires twice the bandwidth than bipolar coding method
 - e. None of the above, answer is: _____
3. In Sliding Window ARQ, selective reject NAK:
 - a. Rejects all messages prior to NAK.
 - b. Retransmits all frames following the NAK.
 - c. Selectively rejects all messages following NAK.
 - d. Acknowledges everything prior to NAK.
 - e. None of the above, answer is: _____
4. Length of an Ethernet network is limited by:
 - a. data rate
 - b. packet size
 - c. CSMA/CD
 - d. all of the above
 - e. None of the above, answer is: _____
5. Which protocol is used to find the MAC address:
 - a. SMTP
 - b. DNS
 - c. TCP
 - d. ARP
 - e. None of the above, answer is: _____
6. For Fast Ethernet operating in half-duplex mode, the maximum length of the lan is about (in meters):
 - (a) Answer is: _____

7. For Gigabit Ethernet (1000Mbps), the CSMA/CD happens during first N of each frame. What is N in microseconds?
- (a) Answer is: _____
8. Frequency Division Multiplexing is applicable when:
- Carrier data rate exceeds that of our signal.
 - Carrier bandwidth exceeds that of our signal.
 - Carrier wavelength propagation delay is lower.
 - Signal to Noise ratio is lower.
 - None of the above, answer is: _____
9. Time Division Multiplexing is applicable when:
- Carrier data rate exceeds that of our signal.
 - Carrier bandwidth exceeds that of our signal.
 - Carrier wavelength propagation delay is lower.
 - Signal to Noise ratio is lower.
 - None of the above, answer is: _____
10. The MAC layer is responsible for:
- End to end error correction.
 - Routing.
 - Converting ASCII to EBCDIC.
 - Dealing with collisions.
 - None of the above, answer is: _____
11. On a bus network,
- devices connect using an active interface.
 - devices connect using a passive interface.
 - LLC layer handles CSMA/CD
 - all of the above
 - None of the above, answer is: _____
12. Ring network,
- devices connect using an active interface.
 - devices connect using a passive interface.
 - LLC layer handles CSMA/CD
 - all of the above
 - None of the above, answer is: _____
13. Slotted ALOHA improved:

- a. Principle Time.
 - b. Propagation Time.
 - c. Flight Time.
 - d. Vulnerable Time.
 - e. None of the above, answer is: _____
14. If bandwidth is 8Mhz, and SNR is 31, max capacity of the channel is (in Mbps):
- (a) Answer is: _____
15. If bandwidth is between 10 and 18Mhz, and SNR is 63, about how many voltage levels are required to achieve maximum capacity
- (a) Answer is: _____
16. We are transmitting data at a rate of 1000 bits per second. During transmission, the noise introduces errors so that, on average, 4% of bits are received incorrectly (i.e.: a 0 as 1, or 1 as 0). The maximum error free capacity of this channel is (in bps):
- (a) Answer is: _____
17. Continuing previous question, if we used 2 voltage levels, what's the bandwidth (in Hz) required for this channel?
- (a) Answer is: _____
18. Continuing previous question, what's the signal-to-noise ratio?
- (a) Answer is: _____
19. We are transmitting data at 8W, and detect only 6W when receiving, attenuation in decibels is:
- (a) Answer is: _____
20. Network switches operate at:
- a. Network layer
 - b. Session Layer
 - c. Physical Layer
 - d. Data Link Layer
 - e. None of the above, answer is: _____