CSPC 26, MID SEMESTER EXAM 1

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Questions

If the 7 bit hamming code word received by a receiver is 1010111. Determine the correct code when even parity is there.

Your answer

Consider the following statements:S1: Manchester and differential Manchester encoding has a transition at the middle of each bit.S2: Nyquist theorem specifies the minimum sampling rate to the twice the bandwidth of the signal.S3: The signal rate is sometimes called the bit rate. S4: In synchronous transmission, we send 1 start bit at the beginning and 1 or more stop bits at the end

- ○ only S1 and S2
- ○ only S2 and S4
- ○ only S3 and S4
- ○ Only S1 and S3

Which transmission media provides the highest transmission speed in a network?

- coaxial cable
- twisted pair cable
- optical fiber
- ethernet Cable

A channel with latency of 50ms and bandwidth of 45 Mbps can hold

- 280 kB of data
- 0.9*10^9 bits
- 1.11*10^-9 bits
- 2.25* 10^6 bits

An IPv4 datagram has arrived in which the offset value is 800, the value of HLEN is 8, and the value of the total length field is 500 and the M bit is 0. What are the numbers of the first byte, the last byte and the position of the datagram?

- 6400, 6867 and Last fragment
- 6400, 6887 and Last fragment
- 6400, 6867 and First fragment
- 801, 1268 and First fragment

The message 100110 is to be transmitted by taking the CRC polynomial x3 +x2 + 1 to protect it from errors. What must be message to be send after appending the CRC to the message?

- ○ 100100000
- ○ 100100001
- ○ 100110110
- ○ 100100111

Given address block, 128.112.128.0/21, needs to be allocated or distributed to 8 different customers with 245 host. The last address block of network resulting from allocation is _____.

- ○ 128.112.135.0/22
- ○ 128.112.136.0/24
- ○ 128.112.136.0/23
- ○ 128.112.135.0/24

In the network 242.20.51.200/28, the fourth octet (in decimal) of the last IP address of the network which can be assigned to a host is _____.

Your answer

Determine the checksum for the 10011001111000100010010010000100. Assume block size is 1 byte. (write answer in binary)

Your answer

Traffic problem can be minimized using

- ◯ Star topology
- ◯ Bus topology
- ◯ Ring topology
- ◯ None of the above

The signal to noise ratio for a voice is 1023:1. The maximum achievable data rate on this line whose spectrum ranges from 1300 Hz to 4300 Hz is_____bps

Your answer

Assume 50 nodes are connected to a 1000 meter length of coaxial cable. Using some protocol, each node can transmit 80 frames / seconds, where the average frame length is 2500 bits. The transmission rate of the system is10^8 bps. The efficiency of the protocol in percentage is _____. (write in digit only)

Your answer

Consider a router that is processing packets from a queue. Assuming that there are 5 packets in the queue. The transmission rate is 10 kbps, each packet size is 125 bytes. If the processing delay is zero for each packet.

The queuing delay suffered by the last packet in the queue is _____ sec.

Your answer

Choose the incorrect pair

- ◯ Network layer and Routing
- ◯ Data Link Layer and Bit synchronization
- ◯ Transport layer and End-to-end process communication
- ◯ Medium Access Control sub-layer and Channel sharing

A bit-stuffing based framing protocol uses an 8-bit delimiter pattern of 01111110. If the output bit-string after stuffing is 01111100101, then the input bit-string is

- ◯ 0111110101
- ◯ 0111110100
- ◯ 0111111101
- ◯ 0111111111