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4/27/24(Due: 5/03/24)

Homework #08

CSCI3550 (Sec: 001)

1.

1.Point-to-point links

2.Broadcast links

2. Frame

3. False

4.

a. Parity Checks, Checksums, and Cyclic Redundancy Checks(CRCs)

b. Cyclic Redundancy Checks(CRCs)

5. False

6. True

7.

a. When the receiver has the ability to check errors but also the ability to act on those errors and fix them

b. FEC is used when it takes longer and or more energy to transmit the message rather than performing FEC(Both the checking and fixing of errors). One example where FEC is used is during deep space radio links. This is because it takes more time to send that data than it is to actually check if the data is corrupted and then fix said corrupted data. So, if you send data to a rover or deep space telescope and there was an error or corruption happened, then the receiver can fix that error rather than resending everything over.

8. Time-division Multiple Access(TDMA), Frequency-division Multiple access(FDMA), and Code-division Multiple access(CDMA)

9.

$$R_{pure} = 0.184C$$

$$C = 1Gbps$$

$$0.184(1Gbps) = 0.184Gbps = 184Mbps$$

10.

a.  $D(x) = 101011$

b.  $G(x) = 1101$

c. 3

d. 110

e. 110110