KOM Questions – Lecture 5a

Data Communications and Networking (Fourth Edition)

Media Access Control

1.1 What is multiple access control (MAC) and why is it necessary?

1.2 Briefly describe the three types of methods for media access control.

1.3 Stations in a pure Aloha network send frames of size 1000 bits at the rate of 1 Mbps. What is the vulnerable time for this network?

1.4 What is the general idea behind CSMA methods?

1.5 Briefly describe the persistence methods for CSMA. What are they used for?

1.6 Can collisions be detected in wireless networks? Why/why not?

1.7 How can channels be divided (for channelization methods)?

1.8 What is the idea behind CDMA? How are codes generated?

1.9 Alice and Bob are experimenting with CDMA using a W_2 Walsh table. Alice uses the code $C_1 = [+1, +1]$ and Bob uses the code $C_2 = [+1, -1]$. Assume that they simultaneously send a hexadecimal digit to each other. Alice sends 6_{16} and Bob sends B_{16}. Show how they can detect what the other person has sent (with computations for all "steps" for a single bit).