

Homework #3

(Due on 12:00am, Thursday, Nov. 5th, 2009)

1. Why does the switch table have a TTL?

2. Recall the number of different services that a link layer can potentially provide to the network layer. These services include: 1) framing; 2) reliable delivery; 3) flow control; 4) error detection and correction; 5) media access. For each of the services, please discuss how (or not) Ethernet provides these services.

3. How are SNR and BER connected? How can decreasing the transmission rate increase the throughput? Why is the slowest transmission rate BPSK not using amplitude modulation anymore?

4. A bit of physics: Can you draw how the bytes 1 0 1 1 could be modulated using a) a phase shift and b) amplitude modulation and c) both on a wave? It is not important to use a known algorithm here, but please think how you would do it and understand the advantages / disadvantages of the different modulations.

5. Why can a host B, hidden to either A or C, nevertheless infer with the A-C link?

6. Draw a general PPP frame. How does the binary data “0011 1001 1111 1001 0101” change if it is added to the frame.