15-440 HW 2: Networking, Etc.

Due: In class on Tuesday, 3/3/09

February 24, 2009

1 EDC/ECC

a) What is the minimum hamming distance of an error detecting code?

b) What is the minimum hamming distance of an error correcting code?

c) What are the advantages of using ECC over EDC?

d) What are the disadvantages of using ECC over EDC?

2 Collisions

Various network link layers have different methods of dealing with collisions. In this problem, you will need to explain how collisions are dealt with in each of the following link layers. You should first determine whether the link layer uses a form of collision detection, collision avoidance, or some other mechanism. Once you've done that briefly explain how it works.

a) Slotted Aloha

b) Ethernet

c) CDMA

3 IP

a) For each of the following IP addresses, give the network address and the host address for the corresponding machine.

i) 128.2.10.162
ii) 192.220.119.70

iii) 18.83.1.39

b) For each of the following IP addresses, give the subnet they are on, assuming a subnet mask of 255.255.255.192.

i) 128.2.13.139
ii) 128.2.10.162

iii) 128.2.13.165

iv) 128.2.13.199

v) 128.2.13.11

4 UDP vs TCP

For each of the following applications decide whether UDP or TCP is a better match and explain your choice.

a) streaming video without buffering

b) streaming video with buffering

c) instant messaging

5 TCP

For each of the five labeled points/regions on the graph, give a brief explanation of what occurred at that time.