**COMP 1587 - CS1 - Local Area Networks: Exercises**

1. How many frames per second can   
    i) half-duplex traditional gigabit Ethernet handle? (frames can be between 64 and 1,518 bytes)

64\*8 = 512 bits 5to the power of 9/512 = 9765625fps

(maximum data rate for Ethernet)

ii) half-duplex frame bursting gigabit Ethernet handle? (frames can be between 512 and 8,192 bytes)

512 bytes \* 8 = 4049

5to the power of 9/4049 = 1234872 per second

 iii) full-duplex gigabit Ethernet handle? (frames tend to be about 9,000 bytes)

5to the power of 9/72000 = 67,444.(4) fps

2. Suppose that a 10-Mbps wireless station is transmitting 50-byte frames one immediately after the other.   
 i) How many frames is it transmitting per second?

50\*8=400

10,000,000/400 = 25000  
 ii) If the probability of a frame being damaged (having at least one wrong bit) is 0.004, approximately how many frames will be damaged in one hour?

25000\*3600\*0.004=3600000 frames per second