STAT-319-Term 173-Sec.04
Quiz #1

Name: **ID**

Q1: 4+4=8-Points)

An experiment consists of flipping a coin and then flipping it a second time if a head occurs. If a tail occurs on the first flip, then a die is tossed once.

a. Write the sample space

b. Let A: at least one head appears, B: At most one head appears. Are the two events mutually exclusive? Explain.

Q2: (3+2=5-Points)

A die is loaded in such a way that an even number is twice as likely to occur as an odd number.

a. If E is the event that a number less than 4 occurs on a single toss of the die, find P (E).

b. Let A be the event that an even number turns up and let B be the event that a number divisible by 3 occurs. Find P(A ∪ B).

Q3: (1+2=3-Points)

Adam is going to graduate from an industrial engineering department in a university by the end of the semester. After being interviewed at two companies he likes, he assesses that his probability of getting an offer from company A is 0.8, and his probability of getting an offer from company B is 0.6. If he believes that, the probability that he will get offers from both companies is 0.5,

a. What is the probability that he will get at least one offer from these two companies?

a. Are the two events getting an offer from company A and getting an offer from company B independent? Explain using probability as your justification.

Q4: (4-Points)

In a certain assembly plant, three machines, E1, E2, and E3, make 35%, 40%, and 25%, respectively, of the products. It is known from experience that 1%, 3%, and 2% of the products made by each machine, respectively, are defective. Now, suppose that a finished product is randomly selected and it was made by machine E2, what is the probability that it is defective?