

Show all work. Each question is worth 10 points, *unless otherwise specified*.

Scenario for Questions 1 to 5: An herbal treatment is being tested to see if it will help people who are suffering from seasonal allergies. Suppose the truth is that the treatment actually will help 60% of people who take it, and results are independent from one person to the next.

1. If the treatment is given to two people, what is the probability that they are both helped by it?
2. Define these two events: **A** = the first person is helped by the treatment
B = the second person is helped by the treatment.
Which of the following is true about the events A and B?
 - A. They are independent events but not mutually exclusive events.
 - B. They are mutually exclusive events but not independent events.
 - C. They are both independent events and mutually exclusive events.
 - D. They are neither independent events nor mutually exclusive events.
3. Event **A** is defined in Question 2 as “the first person is helped by the treatment.” Explain in words the event A^C and give the probability $P(A^C)$.
4. Which of the following sequences resulting from tossing a fair coin 5 times is *most* likely, where H=head and T=tail?
 - A. HHHHH
 - B. HTHHT
 - C. HHHTT
 - D. They are equally likely
5. (From CyberStats Unit B2) In a group of 250 students, 25 are biology majors. If a student is randomly selected from this group, what is the probability that the student is not a biology major?
 - A. .10
 - B. .25
 - C. .75
 - D. .90

