Math 153 - Quiz 6

October 8, 2015

Name key

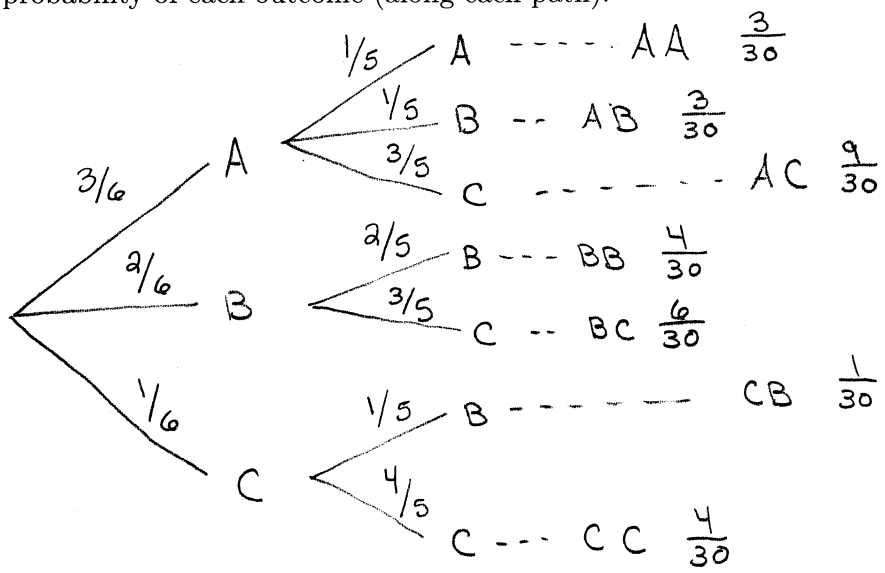
Score _____

Show all work to receive full credit. Supply explanations when necessary.

1. (5 points) A letter is selected at random from the first box and placed into the second box. Then a letter is selected from the second box.

A A A B B C		B C C C

   (a) Sketch the probability tree associated with this two-stage experiment and find the probability of each outcome (along each path).



   (b) What is the probability of selecting the letter C from the second box?

   AC, BC, CC

   $$\frac{9}{30} + \frac{6}{30} + \frac{4}{30} = \boxed{\frac{19}{30}}$$

   (c) What are the odds against selecting a C from the second box?

   Odds in favor are $\dfrac{19/30}{1 - 19/30} = \dfrac{19}{11}$

   Odds against are $\boxed{\dfrac{11}{19}}$

$217+59+18+67 = 361$

2. (3 points) A teacher collected the following data on her students.

	Completed assignments	Did not complete assignments
Passed class	217	59
Failed class	18	67

A student is selected at random.

(a) What is the probability that the student completed assignments?

$$\frac{217+18}{361} = \boxed{\frac{235}{361}}$$

(b) What is the probability that the student completed assignments or passed the class?

$$\frac{217+18+59}{361} = \boxed{\frac{294}{361}}$$

(c) What is the probability that the student completed assignments and passed the class?

$$\boxed{\frac{217}{361}}$$

3. (2 points) If you make random guesses for 8 multiple-choice test questions (each with four possible answers), what is the probability of getting at least one correct? (Hint: It is easy to find the probability of the complement.)

PROB OF NONE CORRECT IS $\left(\frac{3}{4}\right)^8 \approx 0.100$

1/4 C
3/4 I

PROB OF AT LEAST ONE CORRECT IS $1-\left(\frac{3}{4}\right)^8 \approx \boxed{0.90}$