Prince Sultan University
STAT 101
Second Examination
Second Semester 2012-2013, Term 122
Wednesday, April 24th, 2013
Dr. Bahaa El-din Abdalla and Dr. Khaled Manasrah

Time Allowed: 90 minutes
Maximum points: 30 points

Name: _____ _____ _____ ID Number: _____
(First) (Middle) (Last)
Section: _____

Important Instructions*:*
1. You may use CASIO scientific calculator that does not have programming or graphing capabilities.
2. You may NOT borrow a calculator from anyone.
3. You do NOT get special consideration if you forget your calculator.
4. Don't use notes or any notebook.
5. There should be NO talking during the examination.
6. Your exam will be taken immediately without any warning if your mobile is seen or heard.
7. Work in a neat and well-organized manner. Show your work on all problems. Please indicate your final answers clearly.
8. You may use the back of the pages for extra space, but be sure to indicate that on the page with the problem.
9. This examination has **9** problems, some with several parts. Make sure that your paper has all these problems.

Problems	Max Points	Points Earned
1, 2, 3	9	
4, 5, 6	12	
7, 8, 9	9	
Total	30	

1) (3 points) If $P(B)=\frac{1}{3}$, $P(A|B)=\frac{2}{3}$ and $P(A|\overline{B})=\frac{3}{7}$, find

a) $P(A\cap\overline{B})$

b) $P(A)$

2) (3 points) A student must answer seven of nine questions on a statistics final exam. How many choices he has if

a) He can select any seven of the nine.

b) He must answer the first three questions.

3) (3 points) A license plate consists of three letters followed by three digits. Find the total number of such license plates in each of the following cases:

a) The letters and the digits can be repeated.

b) No letter or digit can be repeated.

c) The letters and the digits can be repeated, but the first letter cannot be A and the first digit cannot be 0.

4) (2 point) In how many ways can a student government choose 2 freshmen from among 7 and 3 seniors from among 9 seniors?

5) (6 points) A company has five applicants for two positions: two women and three men. Suppose that the five applicants are equally qualified and no preference is given for choosing either gender. Let X equals the number of women chosen to fill the two positions.
   a) Construct a probability distribution for the random variable X.

   b) Find the probability of at least one woman will be chosen.

   c) Find the mean of the distribution.

   d) Find the variance of the distribution

6) (4 points) 37% of all persons in the Saudi Arabia have at least some college education. Choose 10 persons at random. Find the probability that
   a) Exactly one-half have some college education.

   b) At least 9 do not have any college education.

   c) Fewer than 3 have some college education.

7) (3 points) A person pays $5 to play a certain game by rolling two dice and gets a sum of 10, he wins $10, and if he gets a sum of three, he wins $20. What is the expectation of this game?

8) (3 points) In a batch of 1000 calculators, there are, on average, 4 defective ones. If a random sample of 200 is selected, find the probability of 3 defective ones.

9) (3 points) Of all PSU students 38% have iphone, 30% have blackberry and 32% have Samsung Galaxy. In a random sample of 10 PSU students what is the probability that 3 have iphones, 2 blackberries and 5 Samsungs.