Prince Sultan University
STAT 101
Second Examination
First Semester 2012-2013, Term 121
Wednesday, December 5th, 2012
Dr. Bahaa El-din Abdalla and Dr. Khaled Manasrah

Time Allowed: 90 minutes
Maximum points: 40 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.

Problem	Max Points	Points Earned
1, 2, 3	16	
4, 5, 6	11	
7, 8, 9	13	
Total	40	

1) In a recent year there were the following numbers (in thousands) of licensed drivers in the US

	Male	Female
Age 19 and under	4746	4517
Age 20	1625	1553
Age 21	1679	1627

Choose one driver at random. Find the probability that the driver is

a) (2 points) Male and 19 and under.

b) (2 points) Age 20 or female.

c) (2 points) At least 20 years old.

2) Suppose P(A)=0.5 and P(B)=0.22.

a) (2 points) Find P(A or B) if A and B are independent.

b) (2 points) Find $P(A \setminus \overline{B})$ if A and B are mutually exclusive.

3) Lionel Messi : In November 14, 2012 soccer game between Saudi Arabia and Argentina, 83% of Saudi households had watched the game. Choose 3 households at random. Find the probability that

a) (2 points) All 3 households had watched the game.

b) (2 points) None of the 3 households had watched the game.

c) (2 points) At least 1 of the 3 households had watched the game.

4) A surprise quiz contains three true-false questions. A completely unprepared student decides to choose the answers at random. Let X denotes the number of questions the student answers correctly.

a) (1 points) List the possible values of X.

b) (2 points) Find the probability distribution of X.

c) (2 points) Find the probability that the student gets at least 1 correct.

d) (1 points) Find the mean of the number of the correct answers.

5) (2 points) If we are given a box containing seven books, how many ways can we arrange three of them on a shelf?

6) (3 points) In November 25, 2012 Prince Sultan University Environment Club there were 60 PSU students present. 15 were STAT 101 students, 10 were STAT 271 and the rest were others. If 6 students were selected at random, find the probability that you get 3 STAT 101 students, one STAT 271 student and 2 others.

7) Three out of four Saudi adults have eaten Tamees for breakfast. In a random sample of 20 adults is selected,
   a) (2 points) Find the probability that exactly 15 have eaten Tamees for breakfast.

   b) (1 points) Find the mean number of Saudis who have eaten Tamees for breakfast.

   c) (2 points) Find the variance of number of Saudis who have eaten Tamees for breakfast.

8) (4 points) A copy machine randomly puts out 10 blank sheets per 500 copies processed. Find the probability that in a run of 300 copies, 5 sheets of papers will be blank.

9) (4 points) One thousand tickets are sold at 10 riyal each for an iphone valued at 2650 riyal. What is the expected value of the gain if you purchase one ticket?