Prince Sultan University
STAT 101
First Examination
Second Semester 2012-2013, Term 122
Wednesday, March 13 10th, 2013
Dr. Bahaa El-din Abdalla and Dr. Khaled Manasrah

Time Allowed: 90 minutes
Maximum points: 50 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 **10** problems, some with several parts. Make sure that your paper has all these problems.

Problem	Max Points	Points Earned
1, 2, 3. 4, 5	9	
6	8	
7, 8	14	
9, 10	19	
Total	50	

1) (2pts) Classify each as nominal-level, ordinal-level, interval-level, or ratio- level measurement.
   a) Ranking tennis players in a tournament.

   b) Salaries of the PSU faculties.

2) (2pts) Classify each sample as random, systematic, stratified, or cluster.
   a) In large school district, all teachers from two buildings are interviewed to determine whether they believe the students have less homework to do now than in previous years.

   b) Nursing supervisors are selected using random numbers to determine annual salaries.

3) (2pts) Classify each variable as qualitative, discrete or continuous.
   a) Yearly rainfall (in cubic cm) in Riyadh.

   b) The name of the television show (if any) being watched.

4) (1pt) Identify the following study as being either observational or experimental.
   A researcher finds that people who are more hostile have higher total cholesterol levels than those who are less hostile.

5) (2pts) A student received the following grades last semester. Find the student's semester grade point average

Course	**Credit**	**Grade/Points**
Islamic Studies	3	A/ 4.0
Statistics	4	A/ 4.0
English	3	C/ 2.0
Physics	5	B/ 3.0
Swimming	1	A/ 4.0

6) The following data represents the number of students who used a vending machine during 30 days:

4	2	4	3	2	0	3	2	1	5
3	2	1	0	4	1	6	5	3	2
0	1	4	2	3	2	0	1	0	3

(a) (1pt) Are these data discrete or continuous?

(b) (2pts) Construct a frequency distribution of the data.

(c) (1pt) Construct a relative frequency distribution of the data.

(d) (1pt) What percentage of days have 3 or more students using the machine?

(e) (2pts) Construct a frequency histogram of the data.

(f) (1pt) Describe the shape of the distribution.

7) For 100 randomly selected college applicants, the following frequency distribution for entrance exam scores was obtained.

Class limits	**Frequency**
90-98	9
99-107	22
108-116	37
117-125	23
126-134	9

a) (3pts) Construct a histogram for the given distribution.

b) (1pt) Describe the shape of the distribution.

c) (4pts) Find the standard deviation.

d) (1pt) What proportions of the applicants who score greater than or equal to 117?

e) (2pts) Construct a frequency polygon for the given distribution.

8) (3pts) The average number of days construction workers miss per year is 11 days. The standard deviation is 2.3 days. The average number of days factory workers miss per year is 8 days. The standard deviation is 1.8 days. Which group is more variable in terms of days missed.

9) Give the following data set:
16, 25, 3, 18, 11, 13, 20, 8, 11, 9

a) (1pt) Find the mode.

b) (1pt) Find the range.

c) (2pts) Find the score that correspond to the 65 percentile

d) (4pts) Construct a boxplot for the data.

e) (1pt) Use the boxplot to describe the shape of the distribution.

f) (2pts) Check the above data set for outliers.

10) The following summary statistics were obtained from a data set.

$\bar{x} = 80.5$ median=84.0 $s = 10.5$

$Q_1 = 75.5$ Q3=96.0

a) (2pts) Is the distribution symmetric? Why?

Approximately what proportion (percentage) of the observations are

b) (1pt) below 96.0?

c) (1pt) Above 84.0?

d) (1pt) In the interval 75.5-96.0?

e) (2pts) In the interval 49.0-112.0?

f) (1pt) State which of your answers are based on the assumption of a bell-shaped distribution.