



Prince Sultan University

STAT 101

First Examination

First Semester 2012-2013, Term 121

Wednesday, October 10th, 2012

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 **8** problems, some with several parts. Make sure that your paper has all these problems.

Problem	Max Points	Points Earned
1	4	
2	4	
3	2	
4	7	
5	14	
6	3	
7	3	
8	13	
Total	50	

- 1) (4pts) Classify each variable as Qualitative, discrete or continuous.
 - a) The day of the week on which power outage occurred.
 - b) Number of automobile accidents at a major intersection in Riyadh on the national day.
- 2) (4pts) Classify the sample as random, systematic, stratified, or cluster
 - a) Prince Sultan University Students are divided into freshman, sophomore, Junior and senior and a sample is chosen from each class to be surveyed.
 - b) Three hospitals in Riyadh are selected at random, and the doctors in these hospitals were interviewed.
- 3) (2pts) Identify the following study as being observational or experiment:
 A health club is interested in finding out which of two brands of aerobic exercise equipment provides a more vigorous workout. They purchase 10 machines of each type and for five days between 9 and 12 AM they measure the average pulse rate of each person who is working out on one of these 20 machines.

- 4) The math and reading achievement scores from the National Assessment of Educational Progress for selected states are listed below.

Math	Reading
52 66 69 62 61 63 57 59 59 55 55 59 74 72 73 68 76 73	65 76 76 66 67 71 70 70 66 61 61 69 78 76 77 77 77 80

- a) (4 pts) Construct a back –to-back steam and leaf plot.
- b) (3pts) Find the range of both distributions. Which distribution is less variable?

5) Thirty automobile were tested for fuel efficiency (in miles per gallon). This frequency distribution was obtained.

<u>Class boundaries</u>	<u>Frequency</u>
7.5-12.5	3
12.5-17.5	5
17.5-22.5	15
22.5-27.5	5
27.5-32.5	2

- a) (2pts) Find the sample mean.
- b) (2pts) Find the sample variance.
- c) (2pts) Find the mode.
- d) (2pts) What proportion of automobile has fuel efficiency greater than 22.5 miles per gallon?
- e) (2pts) Construct a histogram distribution for the above data.
- f) (1pts) Comment on the shape of the distribution.
- g) (3pts) Construct ogive distribution for the above data.

- 6) (3 pts) The mean of the grade distribution of Stat 101 is 75 and standard deviation is 3. Using Chebychev's theorem, find the percentage of the scores will fall between 60 and 90.
- 7) (3pts) Which has a better relative position: a score of 75 on Stat 101 test with mean of 60 and a standard deviation of 10 or a score of 92 on a psychology test with mean 80 and a standard deviation of 10?
- 8) The following data are the number of banks for eight Saudi cities.
- 43, 59, 54, 52, 56, 57, 54, 61
- a) (2pts) Find the percentile rank of a score 56.
- b) (3pts) Find the coefficient of variation of the above data.
- c) (1pt) Find the median.
- d) (2pts) Find interquartile range.

e) (2pts) Construct a boxplot for the data.

f) (2pts) Are there any outliers?

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