

#### Prince Sultan University STAT 101

#### **First Examination**

### Second Semester 2010/2011, Term 102 Tuesday, 5h April 2011

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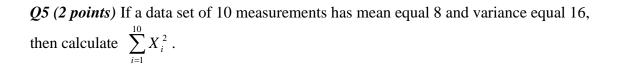
## **Important Instructions:**

Time Allowed: 90 minutes

- 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. You must show all your work beside the problem. Be organized.
- 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	Student's Points
1	2	
2	2	
3	2	
4	4	
5	2	
6	2	
7	2	
8	9	
9	15	
Total	40	

<b>Q1</b> (2 points) Classify each as nominal-level, ordinal-level, interval-level, or ratio-level measurement:		
a.	Temperatures inside refrigerators	
<i>b</i> .	Colors of baseball caps in a store	
$\overline{Q2}$ (2)	points) Identify each study as being either observational or experimental:	
a.	Subjects were randomly assigned to two groups, and one group was given an herb and the other group a placebo. After 6 months, the numbers of respiratory tract infection each group had were compared	
<i>b</i> .	A researcher stood at a busy intersection to see if the color of the automobile that a person drives is related to running red lights	
theore	m to find the percentage of the values that will fall between 20.5 and 29.5.	
	<i>points</i> ) Find the class boundaries and the width for each class limit	
<i>a</i> .	5.4-7.3	
	boundary: width:	
b.	3.16 - 5.82	
	boundary: width:	



Q6 (2 points) If a data set of 8 measurements has mean equal 5 and variance equal zero, then calculate the median.

**Q7** (2 points) If a data set of 4 measurements has mean equal 6, median equal 5 and mode equal 3, then calculate the range.

**Q8** (9 points total) The following is the distribution of the grades of 20 students in STAT 101

Grade (Class Limits)	Number of students (f)
50 – 59	2
60 – 69	4
70 – 79	8
80 – 89	4
90 –99	2

1. (2 points) Construct a frequency polygon.

- 2. (1 point) Describe the shape of the distribution of the grades.
- *3.* (*1 point*) Calculate the mode.
- 4. (1 point) Calculate the proportion of students had grade 80 or more?
- 5. (2 points) Calculate the sample mean.

6. (2 points) Calculate the sample variance.

## **Q9** (15 points total) Given the following data set: 11, 4, 24, 31, 15, 49

- 1. (1 point) Calculate the midrange.
- 2. (1 point) Calculate the percentile rank for the value 15.
- 3. (2 points) Calculate the sample standard deviation.

4. (2 points) Calculate the coefficient of variation.

5. (2 points) Calculate the interquartile range.

6.	(2 points) Find the five-number summary.
7.	(2 point) Construct a boxplot for the data.
8.	(1 point) Use the boxplot, describe the shape of the distribution of the data.
9.	(2 points) Check the above data set for outliers.

# Good Luck