Winter 2014 Math 227 Test 1 Name: _____

Show all necessary work clearly, neatly, systematically, and for full-points. Since part of this is a Test on Descriptive Statistics, the aesthetics aspect of your presentation is considered part of my grading. There are 105 points available

The following are the means SAT Math scores from 50 states and DC in 2004. The data are sorted

476	507	515	543	566	602
493	509	519	546	573	
495	510	521	547	576	
499	512	523	553	585	
499	514	524	553	585	
499	514	528	555	593	
501	514	531	556	596	
502	514	539	557	597	
502	514	539	557	597	
506	515	542	561	601	

From the data, find:

1. (2) Median

2. (2) Mode

3. (3) Q_1

4. (3) Q_3

5. (2) Range

6. (6) Create a Frequency Distribution with 5 classes.

7. (8) COPY the Frequency Distribution in #6 below and EXTEND with lower class limits, upper class limits, lower class boundaries, upper class boundaries, and relative frequency.

8. (10) COPY the Frequency Distribution in #6 below and EXTEND to find the estimated mean and standard deviation. Round to 2 decimal-places.

9. (4) From #8, what is the interval within 2 standard deviations of the mean? And list the outliers.

10. (6:3,3) Suppose the height 40 year-old females have mean 5.5 ft with standard deviations 0.4. According to Chebychev, what is the minimum portion of the population has height between 4.9 ft and 6.1 ft. You need to first find how many standard deviations are these from the mean.

11. (8:5,3) Suppose $P(A) = 0.5$, $P(B) = 0.7$, and $P(A \cup B) = 0.9$. Find:

    a. $P(A \cap B)$

    b. $P(A|B)$

12. (8:5,3) Suppose $P(A) = 0.5$, $P(B) = 0.6$, and $P(A|B) = 0.75$.

a. $P(A \cap B)$

b. $P(A \cup B)$

13. (21:5,3,3,5,5) In a company of 200 employees, there are 32 employees making at least \$100,000/year. Also, 47 of those 200 employees have a graduate degree. Let A be the event "making at least \$100,000/year" and B be the event "having a graduate degree".

a. Create a Venn Diagram.

b. Write the notation and find the probability that a randomly selected employee makes less than \$100,000/year and has a graduate degree.

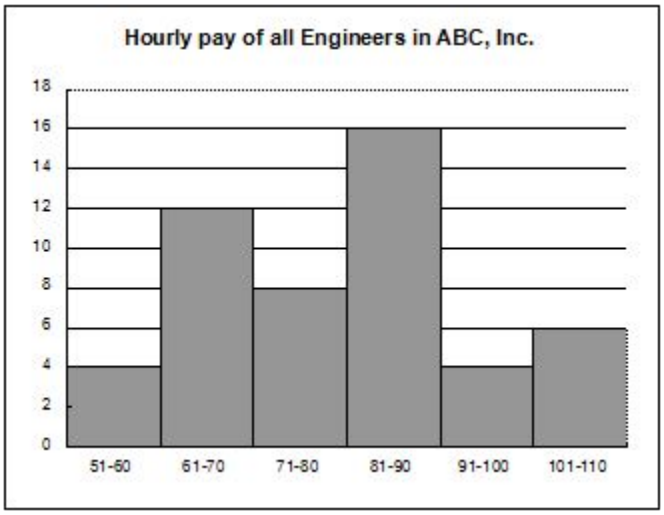
c. Write the notation and find the probability that a randomly selected employee makes less than \$100,000/year or has a graduate degree.

d. Write the notation and find the probability that an employee with a graduate degree makes less than \$100,000/year.

e. TWO employees are randomly selected from those 200 employees to attend a conference. Find the probability that BOTH have a graduate degree.

14. (8) List 4 levels of measurements and provide 3 examples for each level.

15. (14:6,8) Consider the following histogram:



a. Create the Frequency Distribution from the histogram.

b. Extend to find the estimated mean and standard deviation