## Exam One

**Name** *Professor Nutcracker*

1. Circle only one most appropriate answer.

   1. A published report recently stated “Based on a sample of 200 new cars, there is evidence to indicate that the average new car price of all foreign automobiles is significantly higher than the average new car price of all American cars.” This statement is an example of a ...
   a. statistical inference  
   b. random sample  
   c. descriptive statistics  
   d. population.

2. Parking at a large university has become a very big problem. University administrators are interested in determining the average parking time (e.g. the time it takes a student to find a parking spot) of its students. An administrator inconspicuously followed 220 students and carefully recorded their parking times. Identify the population of interest to the university administration.
   a. the entire set of students that park at the university.
   b. the 220 students from whom the data were collected.
   c. the entire set of faculty, staff, and students that park at the university.
   d. the students that park at the university between 9 and 10 AM on Wednesdays.

3. A dealership manager records the colors of automobiles on a used car lot. Identify the type of data collected.
   a. quantitative  
   b. qualitative.

4. If the size of a population is $N$ and the size of a sample taken from the same population is $n$, then the correct relationship between $N$ and $n$ is
   a. $N < n$  
   b. $n > N$  
   c. $n \leq N$  
   d. $n = 2N$

5. At the U.S. Open Tennis Championship a statistician keeps track of every serve that a player hits during the tournament. The statistician reported that the median serve speed of a particular player was 103 miles per hour. Suppose that the statistician indicated that the serve speed distribution has a heavy tail at the high end. Which of the following values is most likely the value of the mean serve speed?
   a. 109  
   b. 103  
   c. 95  
   d. 91

6. A beer dispensing machine pours beer into twelve ounce bottles in a company production line. Listed below are 9 pour amounts (in ounces) sampled during a day’s production.

   $$11.99 \quad 12.01 \quad 11.99 \quad 11.98 \quad 12.03 \quad 12.00 \quad 12.00 \quad 12.00 \quad 11.97$$

   Find the median of the pour amounts.
   a. 11.98  
   b. 11.99  
   c. 11.995  
   d. 12.00

7. A shoe company reports the mode for the shoe sizes of men’s shoes is a size 11. Interpret this result.
   a. The most frequently occurring shoe size for men is size 11.
   b. The average shoe size of men is a size 11.
   c. Half of the shoes sold to men are larger than a size 11.
   d. Half of all men’s shoe sizes are size 11.

8. In skewed distributions, the mean is the best measure of the center of the distribution since it is least affected by extreme observations.
   a. True  
   b. False

9. For the following group of data, calculate the range: 5, 5, 6, 3, 9, 14, 9, 9, 8.
   a. 11  
   b. 14  
   c. 3  
   d. 17

2. Calculate the variance of a sample for which $n = 5$, $\sum x^2 = 1320$, $\sum x = 80$.

   $$s^2 = \frac{\sum x^2 - (\sum x)^2}{n-1} = \frac{(1320 - 80^2/5)}{4} = 10$$