1) Your Stats teacher tells you your test score was the 3rd quartile for the class. Which is true?

I. You got 75% on the test.
II. You can’t really tell what this means without knowing the standard deviation.
III. You can’t really tell what this means unless the class distribution is nearly symmetric.

A) none
B) II and III
C) II only
D) I only
E) III only
2) The advantage of making a stem-and-leaf display instead of a dotplot is that a stem-and-leaf display

A) preserves the individual data values.
B) satisfies the area principle.
C) A stem-and-leaf display is for quantitative data, while a dotplot shows categorical data.
D) none of these
E) shows the shape of the distribution better than a dotplot.

3) Which of the following summaries are changed by adding a constant to each data value?
I. the mean
II. the median
III. the standard deviation

A) III only
B) I, II, and III
C) I only
D) I and III
E) I and II
4) The SPCA collects the following data about the dogs they house. Which is categorical?
A) weight
B) number of days housed
C) veterinary costs
D) breed
E) age

5) The SPCA has kept these data records for the past 20 years. If they want to show the trend in the number of dogs they have housed, what kind of plot should they make?
A) bar graph
B) histogram
C) boxplot
D) pie chart
E) timeplot
6) The veterinary bills for the dogs are summarized in the ogive shown. Estimate the IQR of these expenses.

![Ogive graph]

A) $75  
B) $150  
C) $50  
D) $100  
E) $200

7) Last weekend police ticketed 18 men whose mean speed was 72 miles per hour, and 30 women going an average of 64 mph. Overall, what was the mean speed of all the people ticketed?

A) 67 mph  
B) 68 mph  
C) It cannot be determined.  
D) none of those  
E) 69 mph
8) Which is true of the data shown in the histogram?

I. The distribution is skewed to the right
II. The mean is probably smaller than the median.
III. We should use median and IQR to summarize these data.

A) II and III only
B) I only
C) III only
D) I, II, and III
E) II only
9) A researcher wants to compare the effect of a new type of shampoo on hair condition. The researcher believes that men and women may react to the shampoo differently. Additionally, the researcher believes that the shampoo will react differently on hair that is dyed. The subjects are split into four groups: men who dye their hair; men who do not dye their hair; women who dye their hair; women who do not dye their hair. Subjects in each group are randomly assigned to the new shampoo and the old shampoo. This experiment

A) has two factors (shampoo type and whether hair is dyed) blocked by gender.

B) has one factor (shampoo type), blocked by gender and whether hair is dyed.

C) has three factors (shampoo type, gender, whether hair is dyed).

D) is completely randomized.

E) has two factors (gender and whether hair is dyed) blocked by shampoo type.
10) **Insulators** Ceramics engineers are testing a new formulation for the material used to make insulators for power lines. They will try baking the insulators at four different temperatures, followed by either slow or rapid cooling. They want to try every combination of the baking and cooling options to see which produces insulators least likely to break during adverse weather conditions.

a) What are the experimental units?
b) How many factors are there?
c) How many treatments are there?
d) What is the response variable?
1) A
2) A
3) E
4) D
5) E
6) D
7) A
8) A
9) B
10) a. Material for insulators
    b. 2 - baking temp and cooling method
    c. 8
    d. Likeliness to break during adverse weather