Statistical Reasoning Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Quiz Review : Sections 6.1-6.2 Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Day: \_\_\_\_\_\_

**Vocabulary**

Explanatory variable, Response variable, Lurking variable, Control group, Nonadherers, Refusals, Dropouts, Treatment, Block design, Double-blind experiment, Matched-pair experiment

**Short Answer:**

1. A company wants to test whether meditation techniques lower anxiety levels. The experimenter interviewed 60 subjects and assessed their levels of anxiety. The subjects than were randomly separated into 3 different groups, each learning a different meditation technique. The subjects performed mediation regularly for one month and then were re-assessed for their anxiety levels. The results were statistically significant.

1. Is this an observational or experimental study?
2. Should there have been a control group? If so, what lurking variables could have confounded
3. Draw a diagram to represent the study.
4. Describe the subjects, the explanatory variable, the response variable, and the treatment

for this study.

 Subjects:

 Explanatory:

 Response:

 Treatment:

1. What does “statistically significant” mean?

2. An experiment is to be conducted to determine if a new medicine for dogs and cats is more effective than the current drug on the market. There is a concern that dogs and cats will react differently to the drug.

 (a) What type of design method would be best to use?

(b) Create a diagram that shows the sample design.

3. Which brand of laundry detergent gets stains out of white clothes better – Brand A or Brand B? All clothes

 are washed on hot. An experiment is conducted with white T-shirts, all of which contain grass stains.

1. What type of design method is used?
2. Can this study be blinded? Explain.
3. Would a control group be necessary? Explain.

4. In the above example, suppose we wanted to also measure what water temperature – hot, warm, cold - works best in addition to the detergents.

 (a) Could this experiment be blinded?

 (b) Create a diagram to describe all the treatments that can take place.