**Intro to Experimental Design - Cortland Watson**

**Type in your score here 🡪 \_\_46\_\_ out of 47 points possible**

1. (5 points) Ponder/Reflect Exercise – Reflect on what you have learned from this portion of the class. Examples of what you can do are: a brief outline of material covered, insights you gained from class or personal study, or items you feel that you need to follow up or work on. (3-5 sentences)

In this unit, I have been able to learn a few things. First, I was able to learn that the design process of experimentation is critical in developing the experiment. I was able to learn that by using randomization at all possible moments, we are able to limit bias and control for variability by making sure that all of it is chance-like rather than Voldemort, the kind that we do not want. By using these processes, we will be able to create experiments that allow for studies to become sound observations, rather than biased inferences.

1a. (3 Points) Problem 1.3, pg. 34 in book

1. Chance error
2. Bias
3. Chance Error

1b. (4 Points) Problem 1.4, pg. 35 in book (0.5 Points for each part)

1. False
2. False
3. True (changed)
4. True
5. True
6. False
7. False (changed)
8. Ture

1c. (4 Points) Problem 1.5, pg. 35 in book

1. 3
2. -2, -1, 0, 1, 2
3. 0
4. 1,2,3
   1. 2
   2. B

1d. (3 Points) Problem 1.6, pp. 35-36 in book

1. Bigger fish will be caught but the small fish will slip through the net.
2. The sample does not represent all adults in New York, but those willing to serve that saw a specific advertisement.
3. It is more likely to choose young immature trees due to the proximity of other trees and the quantity of them.

1e. (2 Points) Problem 1.8, pg. 36 in book

1. Randomizing the conditions to the material does two things.
   1. First it turns bias into chance error.
   2. Second it allows for the condition to be more representative of the truth.

2a. (1 Point) Problem A3, pg. 109 in book

R- Recalled words

C- Words given and order

M- People

2b. (1 Point) Problem A5, pg. 109 in book

R- weight

C- number of plants in a cup, different species

M- Crabgrass/seeds

2c. (1 Point) Problem A6, pg. 109 in book

R- Memory

C- Anxiety, hand in a bucket of cold water

M- people

2d. (1 Point) Problem A8, pg. 109 in book

R- moths after a week

C- two spray methods

M- moths

2e. (1 Point) Problem A9, pg. 109 in book

R- Birds feeding

C- Hawk model

M- Birds

3a. (2 Points) Problem B1, pg. 116 in book

1. Ratio
2. Nominal
3. Ratio
4. Ordinal

3b. (2 Points) Problem B4, pg. 116 in book

1. Egg shape – circle, oval, elongated oval
2. ordinal

3c. (1 Point) Problem B8, pg. 117 in book

1. 2

3d. (1 Point) Problem B10, pg. 117 in book

1. 1

3e. (1 Point) Problem B11, pg. 117 in book

1. 2

3f. (2 Points) Problem B14, pg. 118 in book

1. the seed would be less reliable because the seeds can change shape and size, and take different shape. The lead balls would not do this same thing. Ideally, they would be very small balls.
2. They probably gave lower values because of the weight of the balls, or the comparison between the two. Most likely, the comparison between the skulls was less different, or more truthful.

4a. (2 Points) Problem C2, pg. 124 in book

1. Younger
2. Older
3. Age

4b. (2 Points) Problem C3, pg. 124 in book

1. Size
2. More populated

5a. (2 Points) Problem D2, pg. 128 in book

1. 1
2. 2

5b. (2 Points) Problem D3, pg. 128 in book

1. 3
2. 1

6a. (4 Points) Problem 1.14, pg. 36 in book

1. pretest scores of students – student
2. student - student

**DON’T FORGET TO SCORE YOUR HOMEWORK AT THE TOP**