MTH 324, Exam #1, At Home, Fall 2022 Name _____

Instructions: This exam is in two parts: Part I is to be completed partly at home using the materials posted in the course for the at-home portion and you will answer questions about that work during the in-class portion of the exam; Part II is to be completed entirely in class. You may not use cell phones, and you may only access internet resources you are specifically directed to use.

At home, prepare for questions in Part I using R. Open the data file entitled **324exam1data.xlsx** posted in Blackboard. Complete the calculations noted below. You will be asked for additional analysis and interpretation of this data in the in-class portion of the test. Print out the results of your analysis and code, and bring the pages with you to the exam. You will submit all this work along with the in-class exam.

The data represents taxes paid in various neighborhoods in a community. Create the following graphs:

1. A histogram of "Tax Paid". Your histogram should have a bin width of 200-300. Label the graph appropriately.
2. Create a bar graph of neighborhoods (counts). Label the graph appropriately.
3. Create a comparative boxplot of tax paid by neighborhood. Label the graph appropriately.
4. Calculate a set of descriptive statistics for Tax Paid. Be sure to have enough information to identify any extreme values.
5. Create a frequency table of Neighborhood.
6. Find the indicated probabilities.
    a. A particular assembly line produces working computers 99% of the time and computers with malfunctions 1% of time. A sample of 10 computers is sent to quality control. What is the probability of having a sample with no malfunctions?

    b. A security check line at a particular airport sees 100 travelers pass through during a particular hour of the day. Determine the probability that the check line will see 30 or more passengers in the next 10 minutes?

    c. The weight of a particular colony of feral cats has a mean of 7.8 pounds and a standard deviation of 0.6 pounds. What is the probability that a cat in the colony will weigh more than 10 pounds?