

Instructions: This portion of the exam is to be answered based on your Excel work that you completed at home. Submit this document with your answers along with the Excel file upon which the answers are based. Part II of the exam will be completed in class.

To complete this portion of the exam, you will need the Excel file **154final_data.xlsx** also posted in Blackboard. You should perform any calculations in Excel, and then write your answers to the bolded questions directly in the Word document. You may need to copy and paste graphs here as well.

1. Using the data on Sheet 9, complete the following: (b-f: 4 points each)
 - a. Make a scatterplot of the midterm and final exam score data with midterms on the horizontal axis and final exams on the vertical axis. Add a descriptive title and axis labels. Be sure to adjust the axes to eliminate as much unnecessary white space as possible. Add a linear trendline, find the regression equation and R^2 .
 - b. Report the regression equation.**
 - c. Report the correlation value and the coefficient of determination.**
 - d. Is the correlation positive or negative?**
 - e. Is the correlation strong, moderate or weak?**
 - f. Does the relationship in the scatterplot appear to be linear or nonlinear?**

2. Using the data on Sheet 10, Calculate a complete set of descriptive statistics for years of education. Report the following below.
 - a. Mean and standard deviation. (6 points)**

- b. **Five-number summary.** (6 points)
- c. **Range and mode.** (4 points)
3. Using the same data on Sheet 10, make a histogram of education. Label your graph appropriately with axis labels and a descriptive title. **Describe the shape of the graph: is it symmetric, left skewed, right skewed or some other shape?** (5 points)
4. Using the same data on Sheet 10, make a boxplot. **Does the boxplot support your description of the skew or symmetry above? Explain why or why not.** (5 points)
5. On Sheet 11, make a pivot table of the data of drinking and smoking levels. Note that the coding is N=non, O=occasional, H=high, S=smoking, D=drinking. **Copy the table below.** (6 points)
6. The standard deviation of the speed of 86 vehicles on a certain highway is 13.4 mph. **Find the standard error if $SE = \frac{SD}{\sqrt{n}}$.** (5 points)

7. The formula for the standard score is $Z = \frac{x-\mu}{\sigma}$. The mean height of women is 64" with a standard deviation of 3.1", and the mean height of men is 70" with a standard deviation of 3.5". Richard is 6'2" and Pamela is 5'11". **Which of them is taller for their gender? Explain.** (8 points)
8. Using the data on Sheet 10, **find the 80th percentile of education from the data.** (5 points)
9. Using an amortization table or a built-in financial formula in Excel, **find the amount in a savings account** if it collects 2.1% interest, compounded daily, for 18 years, if a \$3 deposit is made every day. (6 points)
10. Using the data on Sheet 11, make a summary table of drinking data, and make a bar graph of it. Label it appropriately and **write a sentence that summarizes what it tells you.** (6 points)
11. Using the data on Sheet 11, make a summary table of the smoking data and make a pie graph of it, and label it appropriately. **What percent of the sample consider themselves non-smokers?** (6 points)

Excel Work: (30 points)