Name _____ **KEY** _____

Section _____

Instructions: This quiz 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. Go to Blackboard and open the data file posted under Quiz #3. Use it to answer the following questions. **Place your answers to the bolded questions directly on this page.** You must submit the Excel file you used to perform calculations into the Quiz #3 folder in Blackboard, and submit the paper version of the quiz to the instructor to be eligible to receive full credit.

1. ElecMart believes that its customer base reflects the general population in terms of gender. If the general population has 51% women, conduct a hypothesis test of proportions to see if this data set provides evidence to support that result [Hint: test whether the data is different than general population]. **State the null and alternative hypotheses, test statistic and P-value. State the conclusion of the test.**

$H_0: p = 51\%$

$H_a: p \neq 51\%$

$z = 3.0006$

P-value: 0.0027 < 0.05

reject null
ElecMart customers are not like general population w/respect to gender

2. Considering the test scenario above, **explain the meaning of a Type I and Type II error in the context of the problem.**

a Type I error is that customers are like the general population, but we reject that claim. Type II is that customers are not like population but we think they are.

3. The data set of election results is provided. The information includes the number of seats won (flipped) for the party of the President, and the popular vote results in terms of the percent difference over the losing candidate. Negative numbers represent a candidate who lost the popular vote but won the electoral college, or seats lost in Congress. Use the number of house and Senate seats won to predict the margin of victory in the popular vote. **State the null and alternative hypotheses, test statistic and P-value. State the conclusion of the test. What can you conclude about the predictive power of House and Senate outcomes on the Presidential race?**

$H_0: \rho = 0$ $H_a: \rho \neq 0$ fail to reject null   P-value = 0.27

Based on the regression analyses, neither House nor Senate seat wins can predict the Presidential outcome.

Submit your completed Excel file to Blackboard, and submit your paper quiz to your instructor in class.