BUS 310, Quiz #2, Fall 2018

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 #2. 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 #2 folder in Blackboard, and submit the paper version of the quiz to the instructor to be eligible to receive full credit.

1. The amount of tax paid in six neighborhoods is sampled. Conduct an ANOVA test to determine if the neighborhood one lives in affects the amount of tax paid. **State the null and alternative hypotheses, test statistic and P-value. State the conclusion of the test.** Create a comparative boxplot to confirm your results.

There is reason to think the means are different

H_0: all means are the same
H_a: at least one is different

$F = 107.366$ P-value: $7.288 \times 10^{-50} < .05$ reject null

2. The data set on sheet #2 contains measurements of gender, homeownership, marital status and salary category. Construct a pivot table to compare Homeownership and Salary Category. Use the pivot table to conduct a χ^2 test for independence, **state the null and alternative hypotheses, test statistic and P-value. State the conclusion of the test.**

H_0: homeownership and salary are independent.
H_a: homeownership and salary are dependent

P-value: $1.47 \times 10^{-54} < .05$ reject null The variables are related

3. The data set on sheet #3 contains before and after test scores for a new training program on OSHAA guidelines. The before test was conducted as a baseline before training, and then employees were retested after training. Conduct a two-sample t-test to determine if the training program was effective. **State the null and alternative hypotheses, test statistic and P-value. State the conclusion of the test. Is the data dependent or independent?**

H_0: The mean difference is 0 $\mu_d = 0$
H_a: The mean difference is positive $\mu_d > 0$ (improves = effective)

$t = -8.946$ P-value: $3.55 \times 10^{-12} < .05$ reject null

The training is effective.

The data is dependent

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