BUS 310, Quiz #2, Spring 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. Three brands of lightbulbs are sampled and their lifetimes measured. Conduct an ANOVA test, **state the null and alternative hypotheses, test statistic and P-value. State the conclusion of the test.**

H_0: all means are the same
H_a: at least one mean is different
p-value: $6.22 \times 10^{-89} < .05$
test stat: $F = 217.67$

reject null
lightbulbs do have different lifespans

2. The data set contains measurements of gender, age group and brand preference. Construct a pivot table to compare Brand Preference and Age. 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: variables are independent
H_a: variables are dependent
P-value: $.277 > .05$

fail to reject null
variables are approx. independent.

3. The data set on a taste test of two beer brands is provided. Subjects were asked to test each beer and provide a rating from 1 to 100. The order that the tasting was done was randomized, but each subject rated both beers. Conduct a two-sample t-test to determine if the company's beer was rated better than the competitor's beer. **state the null and alternative hypotheses, test statistic and P-value. State the conclusion of the test. Is the data dependent or independent?**

dependent
H_0: difference $= 0$ or $\mu_1 = \mu_2$
H_a: diff > 0 or $\mu_2 > \mu_1$
P-value: $6.87 \times 10^{-9} < .05$
reject null
good reason to think our beer is better in taste tests.

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