**STA 6166 – Fall 2012 – Exam 3 – PRINT Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Conduct all tests at  = 0.05 significance level**

Q.1 A study was conducted to compare adverse events between two dose levels of Escitalopram (10 mg, and 20 mg). Among n10 = 535 subjects receiving the 10 mg dose, y10 = 105 reported symptoms of nausea. Among n20 = 542 subjects receiving the 20 mg dose, y20 = 125 reported symptoms of nausea.

p.1.a. Complete the following contingency table:



p.1.b. Compute the following quantities:



p.1.c. Given the following quantities 

p.1.c.i) Test H0: versus HA:≠

Test Statistic: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Rejection Region \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ P-value **< .05** **or > .05**

p.1.c.ii) Obtain a 95% Confidence Interval for 

Q.2. An ergonomic study was conducted to compare computer keyboard preferences among 5 keyboards by gender. A sample of 66 females, and a sample of 36 males were obtained, and each participant selected their preferred keyboard.:



p.2.a. Complete the table of expected values

p.2.b. Compute the Chi-square statistic by completing the following table and give the rejection region for testing whether the distribution of damages differs by extinguisher presence/absence (H0: No association):



Test Statistic\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Reject H0 if test statistic \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Q.3.A two factor experiment was conducted in a RCBD. Factor A had 4 levels, factor B had 3 levels, and there were 6 blocks. Give the sources and degrees of freedom for the analysis of variance table.

Q.4. In a random sample of n = 100 adult fish from a large lake, y = 63 have a particular genetic trait. Test whether a majority of all adult fish in the lake have the trait. H0: ≤ 0.50 versus HA:  > 0.50

Test Statistic: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Rejection Region: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Q.5. A study of the largest ski resorts in Scotland looked at whether event of ski injury was related to whether or not it was the participants first day at the resort (FDP). The following table gives the results. Obtain the estimated Odds Ratio, and its 95% Confidence Interval, where: 



Hint: (1/381) + (1/144) + (1/1743) + (1/1638) = .01075

Estimated Odds Ratio: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 95%CI: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Does this study provide evidence of an association between first day participation and injury? **Yes** or **No**

Q.6.A study was conducted to compare the energy efficiencies among a=3 clothing types b=4 dryer types. There were 3 replicates for each combination of clothing type and dryer type. The cell means and marginal means are given below.



p.5.a. Complete the following ANOVA table.



p.5.b. Use Bonferroni’s method to compare all pairs of Dryer types.