Name   _____

Student No. _____

STA 442/1008 Quiz 6

1. (2 Points) For the TV data, you did a one-factor analysis where the independent variable was region and the dependent variable was assessed value of home. Following up the significant initial test, compare Rural to the average of Small Town and Urban.

   a. You are testing whether a linear combination of population means is different from zero. What is the estimated value of that linear combination? Your answer is a single number.

   b. Give the numerical value of a test statistic (F or t) for testing whether the linear combination equals zero. Your answer is a single number.

   c. Considering this test as a Scheffé follow-up to the initial one-way ANOVA, what critical value of F (with $\alpha = 0.05$) would you use for testing the linear combination. Your answer is a single number.

   d. Is this test significant as a Scheffé follow-up, at the joint 0.05 level? Answer Yes or No.

2. (5 Points) Two stores are selected at random from all No Frills outlets in Ontario. Three cashiers are randomly sampled from each store, and a random sample of 20 customers is selected for each cashier. From security camera pictures, the total time the cashier smiled at each customer is recorded; this is the dependent variable.

   a. In the table below,
      i.   make column(s) giving contrasts for testing differences between stores;
      ii   add column(s) showing the contrasts for Cashier within Store.

Store	Cashier	
1	1	
1	2	
1	3	
2	1	
2	2	
2	3	

   b. Is Store a fixed effect or a random effect? Choose one.

   c. Is Cashier within Store a fixed effect or a random effect? Choose one.

3. (3 Points) For the Bread data, consider the test of the effect of temperature on crustiness.

      a. What is the value of the F-statistic? Your answer is a single number.

      b. What is the p-value? Your answer is a single number.

      c. Are these results statistically significant at the 0.05 level? Answer Yes or No.

      d. If the results are significant, describe what happened in plain, non-statistical language. If the results are not significant, write "No Conclusion."

Please attach printouts of your log file and your list files for both the TV data and the Bread data. Make sure your name is written clearly on all four files.

Total Marks = 10 points