**Assignment 4 Template**

**LAST NAME:**

**FIRST NAME:**

**USERID:**

**UWaterloo ID:**

**Problem 1: Fill in the information below based on your data which were generated using your ID number as the seed for the random number generator.**

**model = mu = sigma =**

**Insert the qqplot of the data here.**

**Based on the qqplot indicate how well the Gaussian model fits the data. Justify your conclusion.**

**mu0 =**

**Insert the output of the command** t.test(y,mu=mu0,conf.level=0.95)

**Obtain the following information from this output:**

**value of test statistic for testing H: mu = mu0 is:**

**degrees of freedom of t distribution =**

**p-value for testing H: mu=mu0 equals**

**95% confidence interval for mu is:**

**Insert your conclusion regarding H: mu=mu0 here.**

**sample mean =**

**sigma0 =**

**sample variance =**

**p-value for testing H: sigma = sigma0 equals**

**Insert your conclusion regarding H: sigma=sigma0 here.**

**95% confidence interval for sigma squared:**

**95% confidence interval for sigma:**

**Problem 2: Fill in the information below based on your data which were generated using your ID number as the seed for the random number generator.**

**alpha = beta = model =**

**sample correlation =**

**Insert the output of the command** Summary(RegModel)

**Obtain the following information from this output:**

**estimate of the intercept =**

**estimate of the slope =**

**degrees of freedom of t distribution =**

**value of test statistic for testing H: no relationship (slope = 0) equals**

**p-value for testing the H: no relationship (slope = 0) equals**

**Insert your conclusion regarding the hypothesis of no relationship here.**

**estimate of sigma =**

**95% confidence interval for the slope:**

**90% confidence interval for the mean response at x=5:**

**99% prediction interval for the response at x=2:**

**Insert the scatterplot with fitted line and plot of Residual versus x on this page.**

**Insert the plot of Residuals versus Muhat and qqplot of Residuals on this page.**

**Based on the scatterplot with fitted line and the residual plots discuss the fit of the simple linear model to your data. Be sure to comment on each plot. Indicate clearly what you expect to see for each plot if the model assumptions hold and what you observe for your data.**

**Problem 3: Fill in the information below based on your data which were generated using your ID number as the seed for the random number generator.**

**mu1 = mu2 = sigma =**

**Insert the output of the command**

t.test(y1,y2,mu=0,var.equal=TRUE,conf.level=0.95)

**From this output obtain the following information:**

**The value of the test statistic for testing H: mu 1= mu2 equals**

**degrees of freedom of t distribution =**

**p-value for testing H: mu1=mu2 equals**

**Insert your conclusion regarding H: mu1=mu2 here.**

**95% confidence interval for the difference in means:**

**sample means:**

**y1bar =**

**y2bar =**

**sample standard deviations:**

**s1 =**

**s2 =**

**pooled estimate of sigma =**

**Insert the qqplots here.**

**Based on the qqplots indicate how well the Gaussian model fits each data set. Justify your conclusions.**