Stat 21 Test 2 v2 Corrections

1) The correct answers are A and D.

3) The correct answers are B, C, and D.

6 A) I would choose model 3. Based on the normal quantile plot in which the residuals roughly follow the line, all models met assumption of normality. In the residuals plot, all models have a band of residuals with consistent width. All models met the assumption of constant variance. The residuals plot for model 1 and 2 show curvature (residuals go down and then up as the fitted values increased) while model 3's residual plot shows no curvature (random distribution of equal amount of residuals above and below the line). Model 1 and 2 does not meet assumption of linearity while model 3 does. Though all the models have similar R^2 values, model 3 has the highest adjusted R^2 value. Additionally, the t-test p-values show significance for all of model 3's predictors.

7 B) answer is based on selection of model 3 for 6A

The t-test in 6B is more reliable than the nested F-test in 7A. Using the residuals plot and the normal quantile plot for model 3, we determine that assumptions of linearity, constant variance, and normality are met for the t-test. For the nested F-test, we determine whether assumptions of linearity, constant variance, and normality are met for both model 1 and 3 Model 1's residuals plot shows curvature so assumption of linearity is not met for the nested F-test.