

SOLUTIONS

- (1) Which of the following is minimized by the least squares (OLS) coefficient estimates? **(a)**
- (2) Which of the following would cause the least squares (OLS) coefficient estimates to be biased? **(e)**
- (3) In a simple regression, the standard error of estimate squared is an estimate of the variance of what? **(c)**
- (4) In a multiple regression, which of the following will tend to INCREASE when the standard error of estimate INCREASES? **(e)**
- (5) For which variables is the slope coefficient statistically different from zero with $\alpha = 0.05$? **(a)**
- (6) What is the rejection region associated with the test of overall statistical significance of the model with $\alpha = 0.05$? **(b)**
- (7) Is this multiple regression statistically significant overall? **(b)**
- (8) Suppose you read a report about a simple regression of the number of bicycles parked in front of a building (y) on the outside air temperature (x). The following table containing prediction intervals is given. What is the estimated least squares line? **(b)**
- (9) In a multiple regression what is the expected effect of adding a totally irrelevant variable to the right hand side of the equation? **(d)**
- (10) What is the variance of y ? **(d)**
- (11) What is the interpretation of "R-squared = 0.2232"? **(b)**
- (12) Given these results, which of the following actions should be taken? **(c)**
- (13) Which of the following can you conclude? **(e)**
- (14) Which of the following is the most serious flaw in the estimation results? **(a)**
- (15) What is the point estimate of the effect that a one unit change in X will have on Y when $Z = 10$ and $Q = 2$? **(a)**
- (16) For which of the following estimated multiple regression models does the point estimate of the underlined coefficient indicate that a 1 unit increase in X is associated with a 4 percent increase in Y ? **(d)**
- (17) For which of the following multiple regression results, with standard errors in parentheses, could you conclude that there is a quadratic relationship between X and Y ? (Suppose the sample size in all cases is very large.) **(d)**
- (18) If you included 40 independent variables in a multiple regression model to explain y , how many would you expect to find are statistically significant at the 5% level if in fact there is no relationship between any of the 40 variables and y ? **(c)**
- (19) For Firm G, what is the relationship between y and var1 and var2 ? **(c)**
- (20) What is the test statistic and rejection region with $\alpha = 0.01$? **(b)**