

SOLUTIONS

- (1) Which of these describe time series data? Data recording _____. **(D)**
- (2) Each day an analyst records the posted online price (in 100s of dollars) of a flight from Toronto to Calgary and the number of tickets sold. Noting a non-linear relationship the natural log of both variables is taken. A regression analysis yields: $\ln(\hat{Q}) = b_0 + b_1 \ln(P)$. Why is it *incorrect* to interpret the coefficient b_1 as the elasticity of demand for flights from Toronto to Calgary? **(B)**
- (3) An analyst performs a simple regression of the number of employees on the age (in years) of a firm for a random sample of firms. On average how many employees are seven-year-old firms predicted to have? This question can be addressed by computing _____. **(B)**
- (4) The P-value for the test of statistical significance of the slope is _____. **(A)**
- (5) The sample coefficient of correlation between Y and X is _____. **(C)**
- (6) In a multiple regression analysis, which graphical technique can you use to check for autocorrelation of the error? **(B)**
- (7) Presuming that the regression lines themselves are correct in each graph, which of these graphs show correct prediction intervals? **(C)**
- (8) These data are _____. **(D)**
- (9) In testing the joint significance of all of the coefficients what is the rejection region for Specification (4)? Rounding to the nearest integer, it is from _____. **(A)**
- (10) For Specification (1), which is a valid statement regarding the negative coefficient on GDP60? **(D)**
- (11) For Specification (4) what is the P-value for the test of statistical significance for the coefficient on GDP60? **(D)**
- (12) GDP60 has a sample range from 0.208 to 7.380 (corresponding to \$208 to \$7,380 in 1980 USD). The sample range in per capita growth rates is -0.017 to 0.074, with a mean of 0.022. According to Specification (3), how would the predicted per capita growth rates compare for two countries with identical values for the other explanatory variables but where Country "Poor" has a per capita GDP of \$208 in 1960 and Country "Rich" has a per capita GDP of \$7,380 in 1960? Per capita GDP growth is predicted to be about _____ in Country Rich compared to Country Poor. **(A)**
- (13) In the previous question the requested prediction _____ an out of sample prediction. **(A)**
- (14) The final row reports $\hat{\sigma}$, which in the notation of our course would be written s_e . What is the interpretation of this number in Specification (1)? **(C)**
- (15) The sample mean house price is \$168,387. What is the standard deviation of house prices? **(C)**

- (16) Because bigger houses tend to be on bigger properties the variables livingarea and lotsize have a significant positive correlation. How should this affect the interpretation of the coefficient on livingarea? **(A)**
- (17) What can we say about the coefficient on age? **(D)**
- (18) The coefficient on a predictor variable is large in magnitude but the coefficient is not statistically different from zero. **(A)**
- (19) The adjusted R^2 is a little lower than the R^2 . **(A)**
- (20) When testing a positive coefficient the analyst can reject the null hypothesis $H_0: \beta_j = 0$ at a 1% significance level if the research hypothesis is $H_1: \beta_j \neq 0$ but not if it is $H_1: \beta_j > 0$. **(B)**
- (21) At least one of the coefficients is statistically significant at the 1 percent level but the multiple regression model overall is not statistically significant at the 5 percent level. **(A)**
- (22) A predictor variable is strongly correlated with the dependent variable—with a coefficient of correlation that is both large and statistically significant—but the multiple regression coefficient on this variable is near zero and statistically insignificant. **(A)**
- (23) A predictor variable has very little correlation with the dependent variable—with a coefficient of correlation that is both near zero and statistically insignificant—but the multiple regression coefficient on this variable is large and statistically significant. **(A)**
- (24) Which of the graphs above could be from the growth versus inequality analysis? **(E)**