Question 1 of 34

In the simple linear equation, the independent variable:

A. is random.
B. is nonrandom.
C. can be random or nonrandom.

Question 2 of 34

The purpose of simple linear regression is to explain the variation in dependent variable in terms of the variation in a single independent variable. Here variation is referred to as:

A. sample variance.
B. population variance.
C. the degree to which a variable differs from its mean.

Question 3 of 34

The simple linear equation has:

A. one regression coefficient, the intercept, denoted as b_1.
B. one regression coefficient, the slope coefficient, denoted as b_1.
C. two regression coefficients: b_0 (intercept) and b_1 (the slope coefficient).

Question 4 of 34

According to the simple linear equation, the dependent variable, Y, is equal to the intercept:

A. times the slope coefficient plus the independent variable plus the error term.
B. plus the slope coefficient times the independent variable minus the error term.
C. plus the slope coefficient times the independent variable plus the disturbance term.

Question 5 of 34

Which of the following statements *best* characterizes the time-series data? Time-series data involves the observations of X and Y for:

A. the same company or asset class from different time periods.
B. the same company or asset class from the same time period.
C. different companies or asset classes from the same time period.

Question 6 of 34

Regression analysis can be used for:

A. time-series data only.
B. cross-sectional data only.
C. both cross-sectional and time-series data.

Question 7 of 34

Cross-sectional data involves the observations of X and Y:

A. from the same company, asset class or country from the same time period.
B. for different companies, asset classes or countries from the same time period.
C. for different companies, asset classes or countries from different time periods.

Question 8 of 34

In simple linear regression, the intercept $\hat{b}_0$ is calculated as:

A. $\hat{b}_1\bar{X} - \bar{Y}$.
B. $\bar{Y} - \hat{b}_1\bar{X}$.
C. $\text{Cov}\,(X,Y)/\sigma^2(X)$.

Question 9 of 34

In simple linear regression, the estimated slope coefficient $\hat{b}_1$ is calculated as:

A. $\sigma^2(X)/\text{Cov}\,(X,Y)$.
B. $\text{Cov}\,(X,Y)/\sigma^2(X)$.
C. $\text{Cov}\,(X,Y)/\sigma(X)\sigma(Y)$.

Question 10 of 34

If the intercept is –3%, what does it *most likely* indicate?

A. The dependent variable will decrease by 3 percent for each one-unit change in the intercept.
B. When the independent variable is zero, the dependent variable will increase by 3 percent.
C. When the independent variable is zero, the dependent variable will decrease by 3 percent.

Question 11 of 34

Consider the following statements made by an analyst:

Statement A: "The standard error of estimate gauges the fit of the regression line."
Statement B: "The larger the standard error, the better the fit."

Which of the following *best* characterizes the analyst's statements?

A. Only Statement A is correct.
B. Both statements are correct.
C. Both statements are incorrect.

Question 12 of 34

Standard error of estimate (SEE) is the:

A. variance of error terms in the regression.
B. mean deviation of error terms in the regression.
C. standard deviation of error terms in the regression.

Question 13 of 34

Standard error of estimate is:

A. low if the relation between dependent and independent variables is weak, and it is high if the relation is strong.
B. low if the relation between dependent and independent variables is strong, and it is high if the relation is weak.
C. high if the relation between dependent variable and slope coefficient is weak, and it is low if the relation is strong.

Question 14 of 34

The percentage of total variation in the dependent variable explained by the independent variable is called:

A. slope coefficient.
B. correlation coefficient.
C. coefficient of determination.

Question 15 of 34

In simple linear regression, what does coefficient of determination, R^2, of 55% mean?

A. 45% variation in the dependent variable is explained by the independent variable.
B. 55% variation in the dependent variable is explained by the independent variable.
C. 55% variation in the independent variable is explained by the dependent variable.

Question 16 of 34

In simple linear regression, if coefficient of determination, R^2, is 0.85, then correlation coefficient, r, is *closest* to:

A. 0.82
B. 0.85
C. 0.92

Question 17 of 34

Linearity assumption of the simple linear regression model implies that:

A. independent variable must not be random.
B. variance of residuals is the same for all observations.
C. dependent or independent variables must be normally distributed.

Question 18 of 34

The F-statistic tests if the:

A. intercept in simple linear regression is equal to 0.
B. slope coefficient in simple linear regression is equal to 0.
C. slope coefficient and intercept in simple linear regression is equal to 0.

Question 19 of 34

The F-statistic is a:

A. ratio of regression sum of squares to sum of squared errors.
B. ratio of average sum of squared errors to average regression sum of squares.
C. ratio of average regression sum of squares to average sum of squared errors.

Question 20 of 34

If the independent variable in the regression model explains none of the variation in dependent variable, then:

A. F-statistic will be 0.
B. F-statistic will be 1.
C. F-statistic will be ∞.

Question 21 of 34

Consider the following hypothetical data:

$\sum_{i=1}^{n}(Y_i - \bar{Y})^2 = 363$ $\sum_{i=1}^{n}(\hat{Y}_i - \bar{Y})^2 = 289$

Total number of observations is 35 and it is a simple regression.

The standard deviation of error (SEE) is *closest* to:

A. 1.49.
B. 3.32.
C. 2.24.

Question 22 of 34

Kane Robertson is a quantitative analyst at Pelican Investment Bank in London. He develops and enhances the pricing/risk management models for the Forex trading desk. He stated the following during a discussion with the new interns at the firm:

Statement 1: "Analysis of variance (ANOVA) is a statistical procedure for dividing the total variation of a variable into components that can be attributed to a single source."
Statement 2: "In regression analysis, (ANOVA) determines the usefulness of the dependent variable in explaining the variation in the independent variable and vice versa."

Which of the following *best* characterizes Kane's statements?

A. Both statements are incorrect.
B. Statement 1 is correct, but Statement 2 is incorrect.
C. Statement 1 is incorrect, but Statement 2 is correct.

Question 23 of 34

The value that gives the amount of total variation in Y that is explained in regression equation is:

A. sum of squares total, SST.
B. sum of squared errors, SSE.
C. sum of squares regression, RSS.

Question 24 of 34

The degrees of freedom used for sum of squares total (SST) in simple regression is *most likely* given as:

A. n
B. n – 1.
C. n – 2.

Question 25 of 34

Which of the following is *most likely* correct considering hypothesis testing for a regression coefficient? If the confidence interval at the desired level of significance:

A. includes zero, the null hypothesis is rejected, and the coefficient is said to be statistically different from zero.
B. does not include zero, the alternative hypothesis is rejected, and the coefficient is said to be statistically different from zero.
C. does not include zero, the null hypothesis is rejected, and the coefficient is said to be statistically different from zero.

Question 26 of 34

Indicator variable is a variable that takes on:

A. a value of either 0 or 1.
B. any value ranges from 0 to 1.
C. any value ranges from -1 to +1.

Question 27 of 34

Alpha measures the excess return and beta the riskiness of a fund (Y) relative to the market (X)

R-squared	0.825
Standard error of estimate	0.018
Number of observations	25

	Coefficients	Standard error
Alpha	0.0008	0.0034
Beta	0.821	0.0356

Two-tailed t-table at 5% level of significance

df	t-critical
25	2.060
24	2.064
23	2.069

Which of the following statements is *most likely* correct?

A. The fund has negative excess return.
B. The fund has significant excess return beyond the return associated with market risk of the fund.
C. The fund does not have significant excess return beyond the return associated with market risk of the fund.

Question 28 of 34

In hypothesis testing for regression coefficient, as standard error of estimate increases the $s_{\hat{b}_1}$:

A. increases and the confidence interval widens.
B. increases and the confidence interval narrows.
C. decreases and the confidence interval narrows.

Question 29 of 34

Consider a confidence interval from 1.19 to 1.83, and an analyst is testing the following null hypothesis at 5% level of significance.

H_0: $b_1 = 1$ H_a: $b_1 \neq 1$

The analyst will *most likely*:

A. reject the null hypothesis because the confidence interval does not include 0.
B. accept the null hypothesis because the confidence interval does not include 1.
C. reject the null hypothesis because the confidence interval does not include 1.

Question 30 of 34

Decreasing level of significance from 5% to 1% *least likely*:

A. increases the probability of rejecting true null hypothesis.
B. decreases the probability of rejecting true null hypothesis.
C. decreases the probability of rejecting a false null hypothesis.

Question 31 of 34

Decreasing level of significance from 5% to 1%:

A. increases the probability of rejecting true null hypothesis.
B. increases the probability of failing to reject a false null hypothesis.
C. decreases the probability of failing to reject a false null hypothesis.

Question 32 of 34

p-value or probability value for a particular hypothesis is the smallest level of significance at which the:

A. null hypothesis can be rejected.
B. null hypothesis can be accepted.
C. alternative hypothesis can be rejected.

Question 33 of 34

Which of the following statements is *least likely* correct regarding the standard error of forecast s_f?

A. The closer the X_f is to $\bar{X}$, the smaller will be the s_f.
B. The better the fit of the regression, the smaller will be s_f.
C. The smaller the n (sample size), the smaller will be the s_f.

Question 34 of 34

In which of the following model, the independent variable is in logarithmic form, but the dependent variable is in linear form?

A. Log-lin model
B. Lin-log model
C. Log-log model