socrative

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DM-Spring-2020-Q2-Grade

41.18% (7/17)

✗ **1.** Select the intercept-only models, if any:

- A y=b0+b1*x
- B y=b0+b1*x1+b2*x2
- C ln(y)=b0
- D y=e^(b1*x)
- E I do not know

✓ **2.** The interpretation of adjusted R^2 for multiple linear regression is the same as the interpretation of R^2 for simple linear regression.

- A True
- B False
- C I do not know

✓ **3.** Which one is observable ("visible")?

- A e (residuals)
- B ε (regression error)
- C neither
- D I do not know

✗ **4.** The estimation of β is distributed as:

- A $b \sim N(0, \sigma^2)$
- B $b \sim N(\beta, \sigma^2)$
- C $b \sim N(\beta, \sigma^2(X^TX)^{-1})$
- D It does not have distribution
- E I do not know

✗ **5.** How many parameters are estimated by OLS in the case of simple linear regression?

A 1
B 2
C 3
D I do not know

✗ **6.** Estimation of e (residuals) is distributed as:

A $e \sim N(0, \sigma^2)$
B $e \sim N(0, \sigma^2 M)$ (M is a matrix)
C It does not have distibution
D I do not know

✗ **7.** b parameters can be computed using only

A OLS
B ML
C Neither
D I do not know

✗ **8.** In the case of multiple linear regression

A adj R^2 < 1 (always)
B adj R^2 <= 1 (always)
C I do not know

✓ **9.** b=

A $(X'X)^{-1}X'Y$
B $(X'X)^{-1}Y'X$
C $(Y'X)^{-1}Y'X$
D I do not know

✓ **10.** The total sum of squares equals

A Sum((y-mean(y))^2)
B Sum((y_hat-mean(y))^2)
C Sum((y-y_hat)^2)
D I do not know

✗ **11.** The regression sum of squares equals

A Sum((y-mean(y))^2)

B Sum((y_hat-mean(y))^2)

C Sum((y-y_hat)^2)

D I do not know

✓ **12.** If RSS is the regression sum of squares and ESS is the error sum of squares then

A $R2$ = 1 – ESS/TSS

B $R2$ = ESS/TSS

C $R2$ = ESS/RSS

D I do not know

✗ **13.** Multicollinearity occurs when

A rank(X)<m (m is the number of explanatory variables)

B var(ε)=σ^2I

C E(ε)=0

D cov(εi,εj)=const

E I do not know

✓ **14.** In simple linear regression model response variable (y) can be

A binary

B categorical

C numeric

D ordinal

E I do not know

✗ **15.** In a simple linear regression model, explanatory variables can be

A binary

B categorical

C numeric

D ordinal

E I do not know

F all answers are correct

G Neither

✗ **16.** If A is a matrix, X is the vector of random variables, then var(AX)=

- A A'var(X)A
- B A^2var(X)
- C var(x)
- D Can not be calculated
- E I do not know

✓ **17.** Which of the answers can be used to conclude about the significance of variables (if any)?

- A t values
- B Estimated coefficients (only)
- C SE of estimated coefficients (only)
- D I do not know