socrative

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April 13, 2020

DM-Spring-2020-Q2-Grade

64.71% (11/17)

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~N(0, σ²)

B b~N(β, σ²)

C b~N(β, σ²$(X^TX)^{-1}$)

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