

## Assignment 2

21. When implementing linear regression of some dependent variable  $y$  on the set of independent variables  $\mathbf{x} = (x_1, \dots, x_r)$ , where  $r$  is the number of predictors, which of the following statements will be true?

Ans **a)  $\beta_0, \beta_1, \dots, \beta_r$  are the regression coefficients.**

22. What indicates that you have a perfect fit in linear regression?

Ans **d) The value  $R^2 = 1$ , which corresponds to  $SSR = 0$**

23. In simple linear regression, the value of what shows the point where the estimated regression line crosses the  $y$  axis?

Ans **a)  $Y$**

24. Check out these four linear regression plots: Which one represents an underfitted model?

Ans **d) The top-left plot**

25. There are five basic steps when you're implementing linear regression:

- a. Check the results of model fitting to know whether the model is satisfactory.
- b. Provide data to work with, and eventually do appropriate transformations.
- c. Apply the model for predictions.
- d. Import the packages and classes that you need.
- e. Create a regression model and fit it with existing data.

However, those steps are currently listed in the wrong order. What's the correct order?

Ans **c) d, e, c, b, a**

26. Which of the following are optional parameters to Linear Regression in scikit-learn?

Ans **b) `fit_intercept`, c) `normalize`, d) `copy_X`**

27. While working with scikit-learn, in which type of regression do you need to transform the array of inputs to include nonlinear terms such as  $x^2$ ?

Ans. **a) Multiple linear regression**

28. You should choose statsmodels over scikit-learn when:

Ans **A) You want graphical representations of your data.**

29, \_\_\_\_\_ is a fundamental package for scientific computing with Python. It offers comprehensive mathematical functions, random number generators, linear algebra routines, Fourier transforms, and more. It provides a high-level syntax that makes it accessible and productive.

Ans **b) Numpy**

30 \_\_\_\_\_ is a Python data visualization library based on Matplotlib. It provides a high-level interface for drawing attractive and informative statistical graphics that allow you to explore and understand your data. It integrates closely with pandas data structures.

Ans **b) Seaborn**