Question 21:

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

a) β_0, β_1, ..., β_r are the regression coefficients.

b) Linear regression is about determining the best predicted weights by using the method of ordinary least squares.

c) E is the random interval

d) Both a and b

Answer: d) Both a and b

Question 22:

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

a) The value $R^2 < 1$, which corresponds to SSR = 0

b) The value $R^2 = 0$, which corresponds to SSR = 1

c) The value $R^2 > 0$, which corresponds to SSR = 1

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

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

Question 23:

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

a) Y

b) B0

c) B1

d) F

Answer: b) B0

Question 24:

Check out these four linear regression plots:

Which one represents an underfitted model?

a) The bottom-left plot

b) The top-right plot

c) The bottom-right plot

d) The top-left plot

Answer: a) The bottom-left plot

Question 25:

There are five basic steps when you're implementing linear regression. However, those steps are currently listed in the wrong order. What's the correct order?

a) e, c, a, b, d

b) e, d, b, a, c

c) d, e, c, b, a

d) d, b, e, a, c

Answer: b) e, d, b, a, c

Question 26:

Which of the following are optional parameters to LinearRegression in scikit-learn?

a) Fit

b) fit_intercept

c) normalize

d) copy_X

e) n_jobs

f) reshape

Answer: b) fit_intercept, c) normalize, d) copy_X, e) n_jobs

Question 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?

a) Multiple linear regression

b) Simple linear regression

c) Polynomial regression

Answer: c) Polynomial regression

Question 28:

You should choose statsmodels over scikit-learn when:

a) You want graphical representations of your data.

b) You're working with nonlinear terms.

c) You need more detailed results.

d) You need to include optional parameters.

Answer: a) You want graphical representations of your data, c) You need more detailed results.

Question 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.

a) Pandas

b) Numpy

c) Statsmodel

d) scipy

Answer: b) Numpy

Question 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.

a) Bokeh

b) Seaborn

c) Matplotlib

d) Dash

Answer: b) Seaborn