21) Linear regression uses the approach of ordinary least squares to calculate the optimum weights (coefficients) for the predictors by minimizing the sum of squared differences between the observed and predicted values.

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

23) The value of b_0, also called the intercept, shows the point where the estimated regression line crosses the y axis.

24) d) The top-left plot- the model is said to be underfitting when there's not enough training data for the model to learn from or when the model itself is unable to capture the trend from the data due to its underlying nature.

25) The correct order of the steps for implementing linear regression is: c) d, e, c, b, a

26) The following are optional parameters to Linear Regression in scikit-learn:

b) fit_intercept- is a Boolean that, if True, decides to calculate the intercept b_0 or, if False, considers it equal to zero.

c) normalize- When the regressors are normalized, note that this makes the hyperparameters learnt more robust and almost independent of the number of samples.

d) copy_X- Default is True; thus, X is copied.

e) n_jobs- Number of jobs to use for computation.

27) A type of linear regression known as polynomial regression models the relationship between the dependent and independent variables, Y and X, as the polynomial's nth degree. This process looks for the most efficient way to use data points to build a line.

28) You should choose statsmodels over scikit-learn when c) You need more detailed results.

For machine learning jobs where predictive performance is more important than in-depth statistical analysis, scikit-learn is frequently used. Projects where the prediction of unobserved values is crucial are a good fit for Scikit-learn.

29) A core Python library for scientific computing is called NumPy.

30) Based on Matplotlib, Seaborn is a Python data visualization package. It offers a sophisticated interface for producing visually stunning and educational statistical visuals.

41) d) Collinearity
When two or more predictor variables are highly correlated with one another, this is referred to as collinearity, and stabilizing the model and performing specific statistical studies may require resolving it. The original variables in a dataset can be

changed into a new set of uncorrelated variables using dimensionality reduction techniques like Principal Component Analysis (PCA), which can aid in reducing collinearity.

42) b) Random Forest- The foundation of Random Forest is the concept of bagging (Bootstrap Aggregating). Several decision trees are trained on various subsets of the training data in Random Forest, and the final prediction is derived by averaging their predictions. Bagging lessens overfitting and enhances the model's overall functionality.

43) c) Decision Tree are prone to overfit

Overfitting is an undesirable machine learning behavior that occurs when the machine learning model gives accurate predictions for training data but not for new data. When data scientists use machine learning models for making predictions, they first train the model on a known data set.

44) c) Training data- Training data is a set of labeled information that is used to develop a machine learning (ML) model. It usually comprises of annotated text, photos, video, or audio. An artificial intelligence model learns to complete tasks with high accuracy by utilizing training data.

45) c) Anamoly detection helps in detecting the outliers in data in machine learning techniques

Anomaly detection is a machine learning approach used for finding outliers or anomalies in a dataset. It focuses on recognizing occurrences in data that differ

significantly from typical or expected behavior. Anomaly detection techniques assist in highlighting data points that may be regarded outliers or anomalous in the context of the dataset by evaluating trends and discovering deviations.

46) The word "numerical functions" may apply to mathematical functions or machine learning methods. All of the alternatives (a) Support Vector, (b) Regression, (c) Case-based, and (d) Classification are important in this situation and do not appear to be inaccurate in the context of machine learning. Each phrase indicates a unique machine learning strategy or algorithm, such as classification and regression analysis, continuous outcome, categorical outcome, and adapting solutions to similar historical issues.

47) d) Both a and b
The analysis of machine learning algorithms incorporates ideas from both statistical and computational learning theories. Statistical learning theory is concerned with deriving prediction functions and comprehending fundamental statistical properties, whereas computational learning theory is concerned with the efficiency and feasibility of algorithms, taking into account resources such as time and space. As a result, a thorough examination of machine learning algorithms frequently includes both statistical and computational learning theories.

48) c) Both a and b

The following are some of the problems with the k-nearest neighbor (KNN) algorithm:

a) Dimensionality's Curse: As the number of dimensions (features) increases, so does the distance between data points, which can lead to sparsity and a decline in algorithm efficacy. The plague of dimensionality refers to this phenomenon.

b) Calculate the test case's distance from all training examples: KNN requires computing the distance between the test case and all training cases, which can be computationally demanding, particularly with big datasets.

As a result, both alternatives (a) Curse of dimensionality and (b) Calculate the distance of the test case for all training examples contribute to the k-nearest neighbor algorithm's challenges.

49) The total types of the layer in radial basis function neural networks are b) 2- An input layer and a radial basis function layer.

50) The non-supervised learning algorithm choice is:

d) The KMeans

K-Means is a clustering unsupervised learning algorithm, not a supervised learning technique. Other supervised learning techniques include PCA (Principal Component Analysis), Nave Bayes, and Linear Regression.