MACHINE LEARNING

Q1 D) Both A and B

Q2) A) Linear regression is sensitive to outliers

Q3) B) Negative

Q4) B) correlation

Q5) C) Low bias and high variance

Q6) B) Predictive model

Q7) D) RegularizationQ9)

Q8) D) SMOTE

Q9) A) TPR and FPR

Q10) B) False

Q11) B) Apply PCA to project high dimensional data

Q12) A) We don’t have to choose the learning rate.,B) It becomes slow when the number of features is very large., D) It does not make use of the dependent variable.

Q13. Regularization: Regularization is a machine learning approach used to prevent model overfitting. It entails including a penalty component in the model's cost function, which encourages the model to have lower and more regulated parameter values. Regularization aids in striking a compromise between accurately fitting the training data and avoiding excessive complexity, hence increasing the model's generalization to previously unseen data.

Q14. Algorithms for Regularization: Some algorithms that incorporate regularization techniques include:

- Ridge Regression (L2 regularization)
- Lasso Regression (L1 regularization)
- Elastic Net Regression (combination of L1 and L2 regularization)
- Support Vector Machines (SVM) with regularization
- Neural Networks with dropout and weight decay

Q15. The difference between the actual observed values of the dependent variable and the predicted values obtained by the linear regression model is referred to as the error in a linear regression equation. This mistake is sometimes referred to as the residual. The method of least squares, which is used to estimate the coefficients of the linear regression equation, is based on the fundamental idea of minimising the sum of squared errors (or residuals). The goal is to discover the coefficients that minimise the overall difference between anticipated and actual values, resulting in the best feasible line fitting to the data.