Assignment 7

MACHINE LEARNING

Ans.1 D) All of the above

Ans.2 D) All of the above

Ans.3 A) The regularization will increase

Ans.4 C) both A & B

Ans.5 C) In case of classification problem, the prediction is made by taking mode of the class labels predicted by the component trees.

Ans.6 C) Both of them

Ans.7 B) Bias will decrease, Variance increase

Ans.8 A) model is underfitting

Ans.9

Ans.10 Random forests solve the problem of over fitting, a problem commonly faced by decision trees. Random **forests use bagging along with sampling the features randomly at each node split. This prevents them from over fitting the data, unlike decision trees**. Random forests do not require tree pruning.

Ans.11 Scaling can make a difference between a weak machine learning model and a better one. The most common techniques of feature scaling are Normalization and Standardization. Normalization is used when we want to bound our values between two numbers, typically, between [0,1] or [-1,1].

Ans.12
We can use fixed learning rate during training without worrying about learning rate decay.
It has straight trajectory towards the minimum and it is guaranteed to converge in theory to the global minimum if the loss function is convex and to a local minimum if the loss function is not convex.

Ans.13 When working with imbalanced data, The minority class is our interest most of the time. Like when detecting “spam” emails, they number quite a few compared to “not spam” emails. So, **the machine learning algorithms favor the larger class and sometimes even ignore the smaller class if the data is highly imbalanced**.

Ans.14 The F-score, also called the F1-score, is **a measure of a model's accuracy on a dataset**. It is used to evaluate binary classification systems, which classify examples into 'positive' or 'negative'.

F-Measure = (2 * Precision * Recall) / (Precision + Recall)

Ans.15 The fit() method helps in fitting the data into a model, transform() method helps in transforming the data into a form that is more suitable for the model. Fit_transform() method, on the other hand, combines the functionalities of both fit() and transform() methods in one step