**[Que-50.30] - How does a random forest algorithm work?**

Random Forest is an ensemble learning method that constructs multiple decision trees and merges their results to improve accuracy and control overfitting. Here's a detailed step-by-step explanation of how the Random Forest algorithm works:

1. **Bootstrap Sampling (Bagging)**:
   * From the original dataset, multiple subsets (bootstrap samples) are created by randomly sampling with replacement.
   * Each subset will have the same number of observations as the original dataset, but some observations may be repeated, and some may be omitted.
2. **Decision Tree Construction**:
   * For each bootstrap sample, a decision tree is constructed.
   * During the construction of each tree, a random subset of features is chosen at each split point, rather than considering all features. This process is called feature bagging.
   * Each tree is grown to the maximum extent without pruning (unrestricted depth).
3. **Prediction Aggregation**:
   * For regression tasks, the predictions from all the individual decision trees are averaged to get the final prediction.
   * For classification tasks, the class predicted by the majority of the trees (majority voting) is taken as the final prediction.