Classification : Artificial Neural Networks , Decision Tree Classifiers & Random Forest are capable of classification tasks , where input data is assigned to predefined classes.

Scalability : Decision Trees and Random Forests are more scalable and efficient compared to ANNs when dealing with large datasets.

Model Interpretability : Due to inherent nature as sets of if-then-else decision rules, decision trees are naturally interpretable and random forests present a challenge in interpretation due to their aggregation of multiple decision trees. The complex and nonlinear nature of ANNs make them considerably more challenging to interpret.

Model Structure : ANNs learn complex relationships through repeated optimization of weights ,Decision tress consists of rules based on feature values and random forests is an ensemble method where each tree is trained on sample of data.

Training Methodology : ANNs are trained using gradient descent algorithm whereas Decision Trees use algorithms like CART or ID3 to maximize information gain or Gini impurity reduction and Random Forest utilizes bagging and feature randomization.

Non-Linear Relationships : ANNs are good at capturing non-linear relationships whereas Decision Trees need deeper trees to capture complex patterns. Random trees also excel at capturing non-linear relationships from multiple decision trees