**NAME**

**JAHNZAIB ZAFAR**

**SECTION**

**BS ARTFICIAL INTELLIGENCE– 3B**

**TASK (5)**

**PART NUMBER 1**

**TOPIC**

**Preorder inorder postorder**

**Tree Traversals in DFS**

When we perform **Depth First Search (DFS)** on a tree, we have three main ways to visit (or traverse) the nodes: **Preorder, Inorder, and Postorder**.  
The difference is when we visit the root node in relation to its children.

**1. Preorder Traversal**

* In this method, we **visit the root node first**, before exploring the children.
* Then we traverse the **left subtree**, and after that, the **right subtree**.
* Order of visiting: **Root → Left → Right**
* Example for tree: a b d e c f

**2. Inorder Traversal**

* In this method, we **first visit the left subtree**, then the **root node**, and finally the **right subtree**.
* This method is mainly used for **binary trees**, because it clearly defines left and right children.
* Order of visiting: **Left → Root → Right**
* Example for tree: d b e a c f

**3. Postorder Traversal**

* In this method, we **visit both subtrees first**, and only after that we **visit the root node**.
* It is useful when we need to delete or evaluate a tree (children before parent).
* Order of visiting: **Left → Right → Root**
* Example for tree: d e b f c a