



# KIET Group of Institutions, Ghaziabad

## Department of Computer Applications

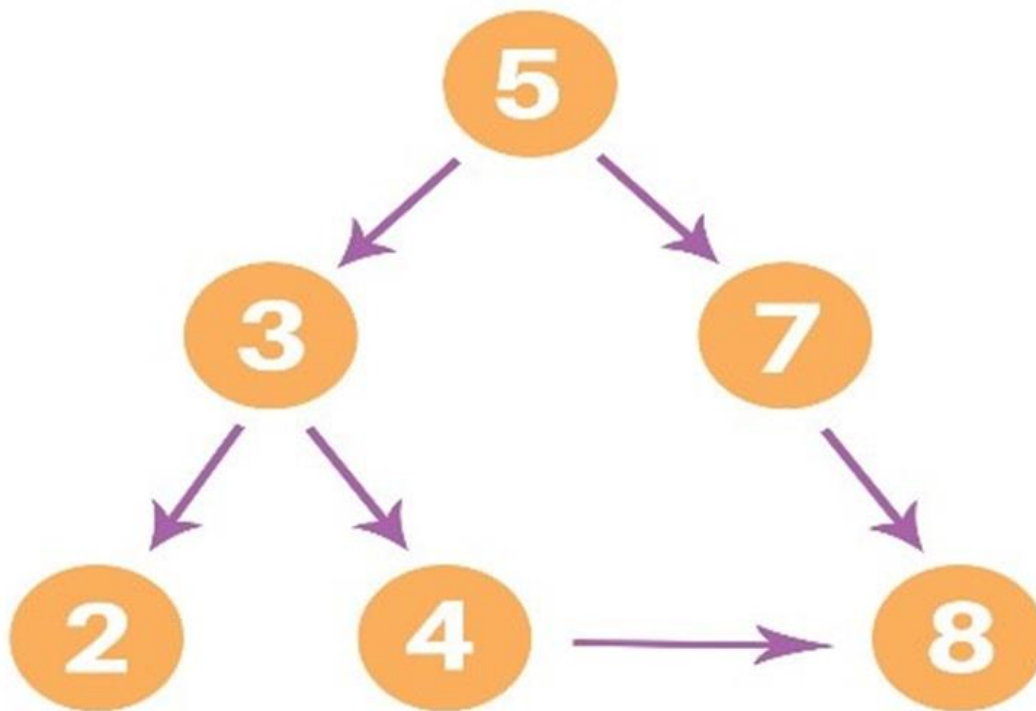
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### Artificial Intelligence Lab

### KCA 351: Session 2021-22

#### Experiment – No-3

**Problem Statement :** Breadth-First Search (BFS) is an algorithm used for traversing graphs or trees. Traversing means visiting each node of the graph. Breadth-First Search is a recursive algorithm to search all the vertices of a graph or a tree. BFS in python can be implemented by using data structures like a dictionary and lists. Breadth-First Search in tree and graph is almost the same. The only difference is that the graph may contain cycles, so we may traverse to the same node again.





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#### *Program:*

```
graph = {
    5 : [ 3 , 7 ] ,
    3 : [ 2 , 4 ] ,
    7 : [ 8 ] ,
    2 : [ ] ,
    4 : [ 8 ] ,
    8 : [ ]
}
visited = []
queue = []
def Bfs(visited, graph, node):
    visited.append(node)
    queue.append(node)
    while queue:
        s = queue.pop(0)
        print(s, end=" ")
        for neighbour in graph[s]:
            if neighbour not in visited:
                visited.append(neighbour)
                queue.append(neighbour)
print("The Traversal is:")
Bfs(visited, graph, 5)
```

#### *Output :*

```
print("The Traversal is:")
Bfs(visited, graph,5)
```

```
The Traversal is:
5 3 7 2 4 8
```