**PROGRAM: 7**

**Aim:** Write a program to implement the following searching techniques: BFS and DFS.

**Code: BFS**

graph = {'A': ['B','C'],

         'B': ['A','D','E'],

         'C': ['F','G','A'],

         'D': ['B'],

         'E': ['H','B'],

         'F': ['C'],

         'G': ['C'],

         'H': ['E']

        }

def bfs(graph, root):

    visited, queue = set([root]), collections.deque([root])

    while queue:

        vertex = queue.popleft()

        visit(vertex)

        for node in graph[vertex]:

            if node not in visited:

                visited.add(node)

                queue.append(node)

def visit(n): print(n)

bfs(graph, 'A')

**DFS**

graph = {'A': ['B','C'],

         'B': ['A','D','E'],

         'C': ['F','G','A'],

         'D': ['B'],

         'E': ['H','B'],

         'F': ['C'],

         'G': ['C'],

         'H': ['E']

        }

def dfs(graph,start,end,route,list):

    route+=[start]

    if start == end:

        list.extend(route)

    else:

        for node in graph[start]:

            if node not in route:

                dfs(graph,node,end,route,list)

def dfs\_route(graph,start,end):

      list = []

      dfs(graph,start,end,[],list)

      return list

print(dfs\_route(graph,'A','G'))

**Output:**



