Computer Engineering Department, S V N I T, Surat.
B Tech-II (CO) 3rd semester
Course: Data Structure and Algorithm (CO-203)
Tutorial – 8
Graph and its application

1. Consider a graph containing N number of vertices and M number of edges. Answer the following questions with proper justification:

    a) How much maximum storage does the adjacency matrix require?

    b) Let N=4 and each slot in the adjacency matrix requires 1 bit. What is the minimum amount of storage needed by an adjacency matrix representation of an undirected graph?

    c) How many items are required to be stored in adjacency list representation for
        i)   Directed graph
        ii)   Undirected graph

2. Write a recursive algorithm for Depth First Search(DFS).

3. Write an algorithm shortest_path(G,s,d), for finding shortest path from the source vertex s to destination vertex d in a graph G.

4. Perform the Breadth First Traversal(BFS) and Depth First Traversal(DFS) for the following graphs: (consider A as the source vertex and visit vertices in anticlockwise (up-left-down-right) order)
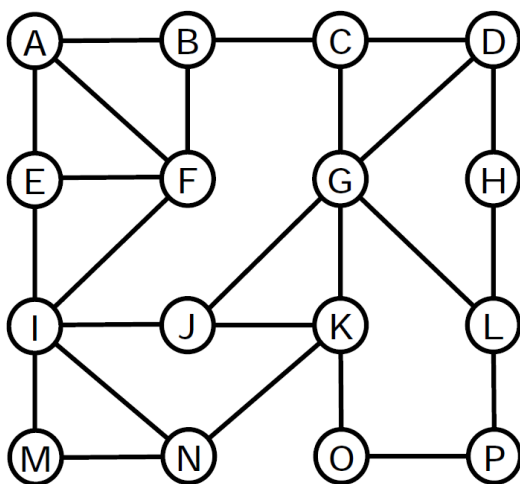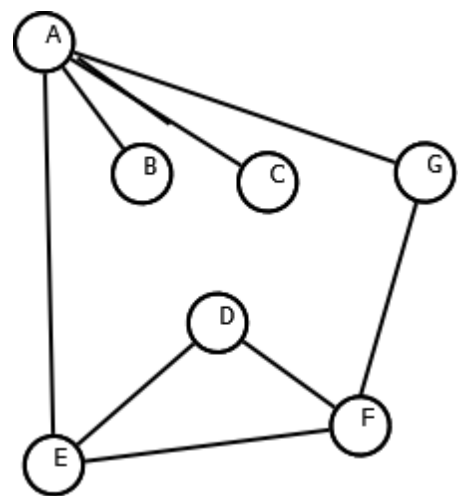

Figure 1   Figure 2