Lab program 9a:-

a) Write a program to traverse a graph using BFS method.

```
#include <stdio.h>

int graph[20][20], visited[20];
int n;

/* BFS Function */
void bfs(int start)
{
   int queue[20], front = 0, rear = 0;
   int i;

   queue[rear++] = start;
   visited[start] = 1;

   printf("BFS Traversal: ");

   while (front < rear)
   {
      start = queue[front++];
      printf("%d ", start);

      for (i = 0; i < n; i++)
      {
         if (graph[start][i] == 1 && visited[i] == 0)
         {
            queue[rear++] = i;
            visited[i] = 1;
         }
      }
   }
}

/* Main Function */
int main()
{
   int i, j, start;

   printf("Enter number of vertices: ");
   scanf("%d", &n);
```

```
    printf("Enter adjacency matrix:\n");
    for (i = 0; i < n; i++)
    {
        for (j = 0; j < n; j++)
        {
            scanf("%d", &graph[i][j]);
        }
        visited[i] = 0;
    }

    printf("Enter starting vertex: ");
    scanf("%d", &start);

    bfs(start);

    return 0;
}
```

```
Enter number of vertices: 3
Enter adjacency matrix:
1
2
3
4
5
6
7
8
9
Enter starting vertex: 1
BFS Traversal: 1
Process returned 0 (0x0)   execution time : 20.717 s
Press any key to continue.
```