5) Write a C program depth first search (DFS) using array.

(IV)

```
#include <stdio.h>
int G[10][10], visited[10], n;
void DFS(int i)
{
  int j;
printf("\n %d", i);
   visited[i]=1;
for (j=0; j<n; j++)
   if (visited[j]&& G[i][j]==1)
      DFS(j);
}
void main()
{
int i, j;
 printf("Enter number of vertices:");
  scanf("%d", &n);
 printf("\n Enter adjacency matrix of the graph:");

for(i=0;i<n;i++)
   for(j=0;j<n;j++)
scanf("%d", &G[i][j]);

   for(i=0; i<n; i++)
      visited[i]=0;

   DFS(0);
}
```

11) Write a C program breath first search (BFS) using array.

Ans

```
#include <stdio.h>
int a[20][20],q[20],visited[20],n,i,j,f=0,r=-1;
void bfs(int v){
   for (i=1;i<=n;i++)
     if (a[v][i]&& visited[i])
      q[++r]=i;
   if (f<=r){
         visited[q[f]]=1;
          bfs(q[f++]);
   }
}
void main()
{
  int v;
  printf("\n Enter the number of vertices:");
  scanf("%d",&n);
  for(i=1;i<=n;i++){
        q[i]=0;
        visited[i]=0;
     }
printf("\n Enter graph data in matrix from:\n");
for(i=1;i<n;i++)
   for(j=1;j<=n;i++)
     scanf("%d",&a[i][j]);
    printf("\n Enter the starting vertex:");
    scanf("%d",&v);
    bfs(v);
    Printf("\n The node which are reachable are:\n");
    for(i=1;i<=n;i++)
    if(visited[i])
      printf("%d \t",i);
```

```
else
    printf ("\n Bfs is not possible");
}
```