KRUSHKAL'S ALGORITHM:

PROGRAM:

```
#include <stdio.h>
#include <conio.h>
void kruskals();
int c[10][10], n;
void main()
{
    int i, j;
    printf("\nenter the no. of vertices:\t");
    scanf("%d", &n);
    printf("\nenter the cost matrix:\n");
    for (i = 1; i <= n; i++)
    {
        for (j = 1; j <= n; j++)
        {
            scanf("%d", &c[i][j]);
        }
    }
    kruskals();
    getch();
}

void kruskals()
{
    int i, j, u, v, a, b, min;
    int ne = 0, mincost = 0;
    int parent[10];
    for (i = 1; i <= n; i++)
    {
        parent[i] = 0;
    }
    while (ne != n - 1)
    {
        min = 9999;
        for (i = 1; i <= n; i++)
        {
            for (j = 1; j <= n; j++)
            {
                if (c[i][j] < min)
                {
                    min = c[i][j];
                    u = a = i;
                    v = b = j;
                }
            }
```

```
        }
        while (parent[u] != 0)
        {
            u = parent[u];
        }
        while (parent[v] != 0)
        {
            v = parent[v];
        }
        if (u != v)
        {
            printf("\n%d----->%d=%d\n", a, b, min);
            parent[v] = u;
            ne = ne + 1;
            mincost = mincost + min;
        }
        c[a][b] = c[b][a] = 9999;
    }
    printf("\nmincost=%d", mincost);
}
```

OUTPUT:

```
User@PRATHIKSHA /c/ada lab
$ cd "/c/ada lab/" && gcc krushkals.c -o krushkals && "/c/ada lab/"krushkals

enter the no. of vertices:      6

enter the cost matrix:
9999          3    9999    9999          6          5
      3    9999          1    9999    9999          4
9999          1    9999          6    9999          4
9999          6          6    9999          8          5
      6    9999    9999          8    9999          2
      5          4          4          5          2     9999

2----->3=1

5----->6=2

1----->2=3

2----->6=4

4----->6=5

mincost=15
```