Program:

main.cpp

```cpp
#include <bits/stdc++.h>
using namespace std;
class DSU {
    int* parent;
    int* rank;
public:
    DSU(int n)
    {
        parent = new int[n];
        rank = new int[n];
        for (int i = 0; i < n; i++) {
            parent[i] = -1;
            rank[i] = 1;
        }}
    int find(int i)
    {
        if (parent[i] == -1)
            return i;
        return parent[i] = find(parent[i]);
    }
    void unite(int x, int y)
    {
        int s1 = find(x);
        int s2 = find(y);
        if (s1 != s2) {
```

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```
            if (rank[s1] < rank[s2]) {
                parent[s1] = s2;
                rank[s2] += rank[s1];
            }
            else {
                parent[s2] = s1;
                rank[s1] += rank[s2];
            }}}};
class Graph {
    vector<vector<int> > edgelist;
    int V;
public:
    Graph(int V) { this->V = V; }
    void addEdge(int x, int y, int w)
    {
        edgelist.push_back({ w, x, y });
    }
    void kruskals_mst()
    {
        sort(edgelist.begin(), edgelist.end());
        DSU s(V);
        int ans = 0;
        cout << "Following are the edges in the "
             "constructed MST"
        << endl;
```

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```
51          for (auto edge : edgelist) {
52              int w = edge[0];
53              int x = edge[1];
54              int y = edge[2];
55              if (s.find(x) != s.find(y)) {
56                  s.unite(x, y);
57                  ans += w;
58                  cout << x << " -- " << y << " == " << w
59                      << endl;
60              }}
61          cout << "Minimum Cost Spanning Tree: " << ans;
62      }};
63  int main()
64  {
65      Graph g(4);
66      g.addEdge(0, 1, 10);
67      g.addEdge(1, 3, 15);
68      g.addEdge(2, 3, 4);
69      g.addEdge(2, 0, 6);
70      g.addEdge(0, 3, 5);
71
72      // Function call
73      g.kruskals_mst();
74      return 0;
75  }
```

Output

```
/tmp/Pzfta2X1Zk.o
Following are the edges in the constructed MST
2 -- 3 == 4
0 -- 3 == 5
0 -- 1 == 10
Minimum Cost Spanning Tree: 19
```