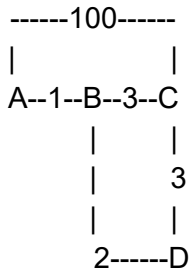
B2- Online 4

Minimum spanning Tree(MST):

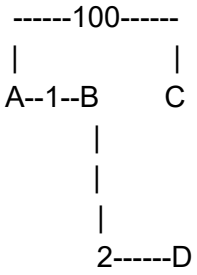
Description:

You are given a weighted graph G(V, E) Where V represents vertices & E represents edges. Now you are given some edges as constraints, create a minimum spanning tree which will contain those edges.

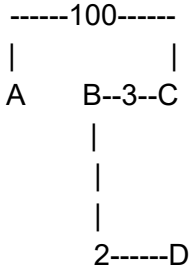
Suppose, in the following Graph Trivial MST is A-B-D-C of cost 6



Now, You are asked to find minimum spanning tree where, edge A-C edge must be present, Therefore the new minimum spanning tree with constraints will be like following with cost, 103



If we add constraints, A-C and B-C both must be present, the the minimum spanning tree would be following with cost 105



Rest assured that no invalid constraint will be given as input.

Sample input format:

1. Test case T
2. For each case, first line specifying the number of vertices and edges n, m
3. m following edge description
4. p specify number of given edges
5. Input p edges

Sample output format:

1. Value of the spanning tree

Instructions : Use Kruscal or Prim's algorithm for finding minimum spanning tree.

Mark distribution:

1. MST of Graph - 4
2. MST with edge constraints -6

Sample Input	Sample Output
2	
4 5 0 1 1 0 2 100 1 2 3 1 3 2 2 3 3 1 0 2	Case 1# MST: 6 With Constraint: 103
4 5 0 1 1 0 2 100 1 2 3 1 3 2 2 3 3 2 0 2 1 2	Case 1# MST: 6 With Constraint: 105
