

i) We can use Kruskal's Algorithm but let the edges in decreasing order.

We start with $E' = \emptyset$, so each vertex forms its own connected component $\{v\}$, then V' is the set of all vertices that are not touched by any edge of E' , so initially $V' = V$. Order the edges $e \in E$ with respect to decreasing costs $c(e)$ and process the edges in this order. If e satisfies the conditions of the lemma, it has one end-point in V' , then add e to E' . In doing so the connected components of the end-points of e are merged. When there is only one connected component, the algorithm terminates with (V, E') being the constructed minimum spanning tree.

ii) It doesn't matter because the algorithm will not add the edge costs, the negative cost edge can also simply rank and get the minimum spanning tree. But it is not sensible, for the minimum spanning tree is not the minimum spanning set. Because the minimum spanning set can include a negative ring, which can make the sum of edge costs smaller than minimum spanning tree.