

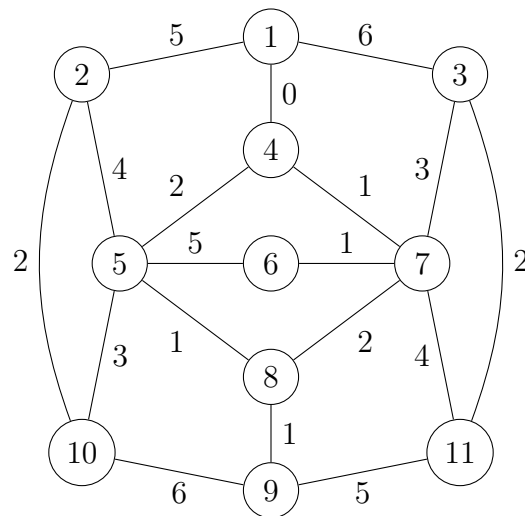
Concepts and Algorithms of Optimization – Series 4

www.math.uni-magdeburg.de/institute/imo/teaching/wise19/cao/

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Exercise 1

Consider the following graph $G = (V, E)$ with given edge costs c_e for all $e \in E$.



- Determine a spanning tree T in G with minimal costs $c(T)$.
- Give a general description of the algorithm applied in (a).
- Determine all cliques C_i in G with $|C_i| \geq 3$.
- Find a stable set S^* in G with maximal weight $w(S^*)$ regarding the node weights $w_v = 1$ for all $v \in V$.
- Decide whether the graph G is bipartite.

(Hint: This corresponds to finding a stable set with maximal cardinality in G .)