Discrete optimization | Thursday, Mai 2, 2019
Prof. F. Eisenbrand | EPFL

The problem can be submitted until Mai 10, 12 :00 noon, either at the exercise session or into the box in front of MA C1 563.

Student(s) [1] :

Question 1 : *The question is worth* 5 *points.*

☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 *Reserved for the corrector*

Given a graph G, a perfect matching of G is a matching which covers all the vertices (equivalently, a matching of cardinality $|V|/2$).
Suppose you are given an oracle that, given a graph G, tells you whether G has a perfect matching or not. Show how to use this oracle to determine the maximum cardinality matching of a graph $G(V, E)$. The total number of calls to the oracle (to find the cardinality of the maximum matching, and then to find the matching itself) should be at most $|V| + |E|$.

1. You are allowed to submit your solutions in groups of at most three students.