

Group Assignment 2

Each exercise is worth 10 points.

1. Suppose you have a quantum computer C that for any given Boolean formula B will instantly tell you whether B is satisfiable. Show how C can be used to find an assignment of truth values to the variables in B that will satisfy B . How many times must C be called in the worst case?
2. Do problem 34-1, parts a and b in the textbook.
3. Consider the problems consisting of two graphs G and H and the problem is to determine whether H is a subgraph of G , that is whether there is a one-to-one function f from the vertices of H to the vertices of G such that for any vertices u and v in H , if (u,v) is an edge in H , then $(f(u), f(v))$ is an edge in G . Show that this class of problems is NP-complete.
4. Consider problems consisting of a set of numbers and the problem is to determine whether the set can be split into two disjoint sets such that the sums of the numbers in each set are equal. Show that this class of problems is NP-complete.