NP-complete practice

Problem 1 (MCQs)

Check all statements that are true:

1. If we can solve Subset Sum in polynomial time, then `P=NP`.
2. Every problem in the class `P` can be reduced to `Vertex-Cover`.

Consider the `Longest Path Problem`:
Input: a graph $G = (V, E)$ and an integer $g > 0$.
Output: a path of length greater or equal that g.

This problem can be proved to be `NP-hard` by generalization from which of the following problems?

1. `Independent Set`.
2. `Clique`.
3. `Vertex Cover`.
4. `Rudrata Path`.

Problem 2 Problem 8.12 from [DPV] ($K-$spanning tree)

Problem 3 Problem 8.14 from [DPV] (Clique+IS)