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Q-1

1. (c) ~~have~~ ~~polym~~

2. (e)

3. (a)

4. (a)

Q-2

i) False

ii) False

iii) True

iv) True

Q-3

i) The problem is in NP, but not in P.

It means we can verify its YES solution, in polynomial time. Also, we can state that it can not be solved in polynomial time. This

results in to say $P \neq NP$. Because,

we have found at least one problem which exists in NP set, but not in P. ~~say~~ Stating $P \neq NP$ is significant.

ii) In this proof, there is a gap. Because to see a 3-SAT problem satisfiable, ~~we~~ it is not certain that we have to take every single assignment one-by-one and then test it. We ~~are finding~~ need to find just a single assignment. We cannot say that we have to test all the possibilities. So, the fallacy in the proof that we did not prove that we must test 2^n possibilities one-by-one and test it. That's why, the proof is not valid.

Another way to say it, we did not prove that there is no polynomial solution. However, there can be polynomial solution. We need to prove the impossibility of polynomial solution.