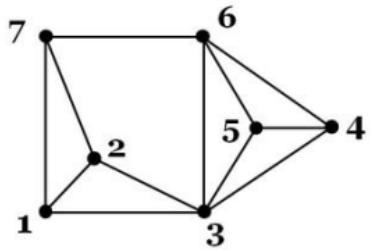
CSE208: Data Structures and Algorithms II Sessional

Online on NP-completeness (B1/B2)

Clique

Given an undirected graph $G = (V, E)$, a clique is a subset of vertices $K \subseteq V$ of an undirected graph such that every two distinct vertices in the clique are adjacent, i. e., for all distinct $u, v \in K$, $(u,v) \in E$. For example, 3,4,5,6 is a clique in the following graph.



The decision version of the **clique problem** is, given a graph $G = (V, E)$ and an integer k, to decide whether G has a clique of size $\geq k$.

Prove that the clique problem is NP-complete.