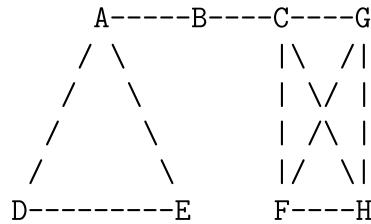


1. [10 Points]

The **Maximal Clique** problem is stated as follows: Given an undirected graph $G = (V, E)$ with N vertices and M edges. Find a maximal size subset of vertices X from V such that every pair of vertices u and v in X are directly connected with an edge (u, v) in E . In other words you want to find a maximal fully-connected subset of vertices.

For example, the set of vertices $X = \{C, F, G, H\}$ constitutes a Maximal Clique for the following graph:



Formulate the **Maximal Clique** problem as a Genetic Algorithm or another form of evolutionary optimization. You should specify:

- A representation
- A fitness function. Give 3 examples of individuals and their fitness values if you are solving the above example.
- A set of mutation and/or crossover and/or repair operators. Intelligent operators that are suitable for this particular domain will earn more credit.
- A termination criterion for the evolutionary optimization.