Student name:

First Order-Logic Resolution.

1. A 2-colored graph

a) Consider a graph with the properties described below. For each property, write a corresponding statement in First-Order Logic. Hint: use nodes as the only objects in your domain, express a node's color with a red/1 or black/1 predicate, and that two nodes are connected with a C/2 predicate

- Each node is colored either red or black (but not both)

- For every pair of nodes, if they are adjacent, then they must be of different colors (you may need to write one statement for red and another for black)

- Every adjacency is symmetric

b) Now convert each statement to CNF and write the Knowledge Base corresponding to those statements, in addition to the two facts already expressed below

1. Adj(a,b)
2. Adjb,c)
3. Adj(c,d)

c) Finally, add the negation of the following query to the KB and use resolution to derive a contradiction:

"If a is red, then d is black"