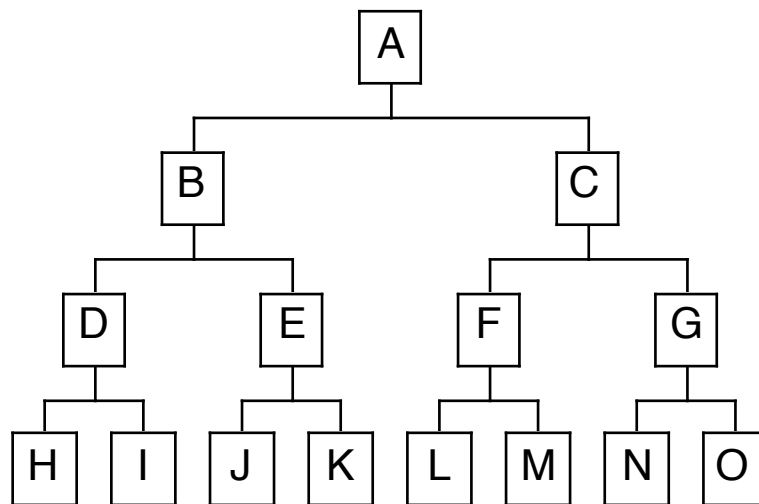


Homework set #4
BENG 100
Spring 2008
Due: February 14, 2008

1. Design an experiment to determine whether or not a vaccine has been effective.
2. Explain the difference between a subunit vaccine and a DNA vaccine.
3. There are 10 million people in New York City. One person contracts Small Pox, and this person subsequently spreads it to the rest of the city.
 - a. Derive an equation that you can use to find the number of infectious exchanges that must occur in order to infect 10 million people. Assume that in each exchange, each infected person will infect 2 uninfected people. (see diagram below).
 - b. Assume that exchanges occur per day. Based on your answer from part a, how many days would it take to wipe out the city?
 - c. Discuss why this scenario is unrealistic.



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