A GAME PROBLEM

A game involving two players is played on the board below as follows. The starting point is A. Each player takes turns moving along en edge in the direction of an arrow. A turn consists of moving along exactly "one" edge. For example, the first move can be from A to any one of the points B, C, F, H, or I. If the first player moves to the point H, then the second player must move to either point G or point M. The winner is the player who moves to point N.

(a) Beginning with the last point N and working backwards, decide which points are "good" points to move to and which points are "bad" points to move to. For example, N would be a good point. Also, L and M would be bad points (if you move on one of these two, the other player will win). Note that it may be possible for two adjacent points to both be good or to both be bad.

(b) Is it best to move first or second in this game?

(c) If the first player moves to point H, what is the best move for the second player?