

1. (1 Mark) How many states did Minimax and Alpha-Beta expand for the starting position provided above?

Minimax: 17607

Alpha-Beta: 1414

2. (1.5 Mark) How can player 'O' win the game from a state such as the one shown above? Note that this is a "how" question.

The best way to win would be trying to get a diagonal, given that the position of O's maximize the change of winning with a diagonal.

3. (1.5 Mark) Is it possible for Minimax and Alpha-Beta to expand the same number of nodes? Explain why not, or under which conditions this is possible.

It is possible, in a scenario where every node encountered is best for both the maximizing player and the minimizing player. In this scenario Alpha-Beta and Minimax would expand the same number of nodes because Alpha-Beta does not 'skip' or prune any nodes.