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Connect Four is a two-player connection game in which the players first take turns dropping marked discs (**Marked X disc** for computer player and **Marked O disc** for human player) from the top into a **seven-column, six-row** vertically suspended grid. The pieces fall straight down, occupying the next available space within the column. The objective of the game is to **connect four** discs of the **same mark** next to each other **vertically, horizontally, or diagonally** before your opponent.

After taking the exciting course of AI at FAST some of our students intend to implement an auto-player of connect-4 that uses MINIMAX algorithm with alpha-beta pruning. While playing the game the auto-player (marking **X**) reached the following board position and it is his turn to make a move.

7	O	X	O	X		
6	X	O	X	X		
5	X	O	X	O	X	
4	X	X	X	O	X	O
3	O	X	O	O	O	O
2	O	O	X	X	O	O
1	X	O	O	O	X	X
	1	2	3	4	5	6

Column No

Part a) [4 Points] Draw a complete game tree that will be used by the auto-player to make the move. You don't have to show the whole grid at every node of the tree, just show the mark and position being filled.

Part b) [6 Points] Use the MINIMAX algorithm to determine the move of auto-player.

Part c) [5 Points] Which part of the tree will be pruned by the auto-player if he always expand the nodes from left to right in your game tree.

Quiz No 1: Total Marks (15) CS401-Artificial Intelligence(Spring 2017)

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Row Number	7	O	X	O	X		
	6	X	O	X	X		
	5	X	O	X	O		X
	4	X	X	X	O	X	O
	3	O	X	O	O	O	O
	2	O	O	X	X	O	O
	1	X	O	O	O	X	X
		1	2	3	4	5	6
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