

Let's formulate the Towers of Hanoi as a well-defined search problem.

(a) Propose a state representation for the problem.

The initial state.

(b) What is the initial state?

The initial state is the state the agent starts in. All discs are stacking up on peg A, the right most peg with biggest disc at the bottom, smallest on the top

(c) From a given state, what actions are legal?

Move a disc from one peg to another

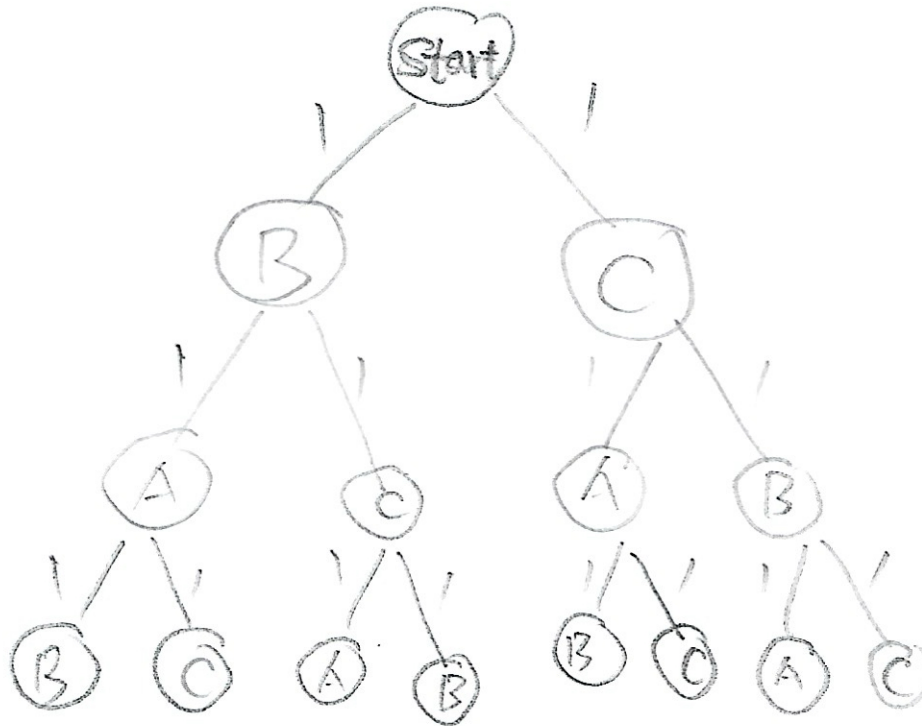
(d) What is the goal test?

Move all discs to the rightmost peg

**Part B**

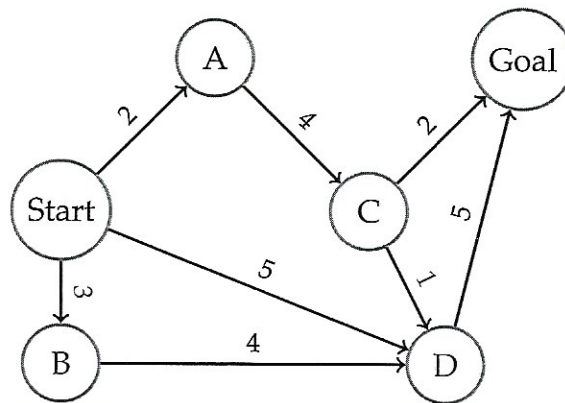
Let's assume that action costs in the Towers of Hanoi problem are all 1.

Apply the breadth-first search algorithm to find a solution to the 2-disc Towers of Hanoi. Draw out the search tree to show this.

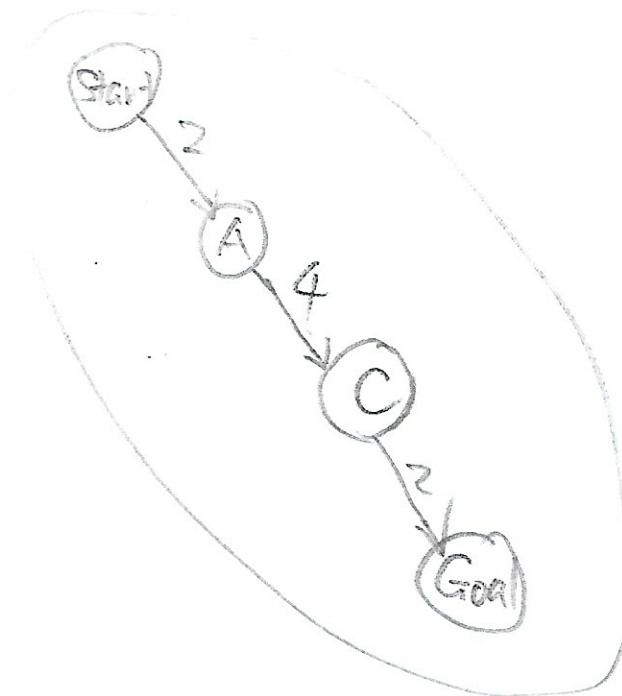


## Part C

Suppose our problem has the following state space graph:



Apply the uniform-cost search algorithm to find a solution to this problem. Draw out the search tree to show this.



total cost: 8  
cheapest