

AT Assignment #1 Date _____ 20 _____

Roll No: 12180286

3.9)(a)

$M_1, C_1, B_1, M_2, C_2, B_2$
 $(3, 3, 1, 0, 0, 0)$

sec A

$(2, 2, 0, 1, 1, 1) \quad (3, 2, 0, 0, 1, 1) \quad (3, 1, 0, 0, 2, 1)$

$(3, 2, 1, 0, 1, 0)$

$(3, 0, 0, 0, 3, 1)$

$(3, 1, 1, 0, 2, 0)$

$(1, 1, 0, 2, 2, 1)$

$(2, 2, 1, 1, 1, 0)$

$(0, 2, 0, 3, 1, 1)$

$(0, 3, 1, 3, 0, 0)$

$(0, 1, 0, 3, 2, 1)$

$(0, 2, 1, 3, 1, 0)$

$(1, 1, 1, 2, 2, 0)$

$(0, 0, 0, 3, 3, 1)$

end

3.9)(b)

It is good to check for repeated states as this appears to be a ~~di~~ bidirectional graph as we repeat a node we need to undo it.

- (c) Although state space is simple, still most of the people have a hard time solving this problem because comparison is difficult and most of the moves which seem obvious are usually illegal which may break condition of problem.

13-14)

- (a) False, As Depth First Search may find goal without backtracking
- (b) True, Admissible is defined by its Least Possibility. ie can not be less than zero.
- (c) False, A* can be used to help in path determination.
- (d) True, optimal cost does not matter in complete.
- (e) False, Sometimes since rook can have variable length it may overestimate cost of reaching goal.

3.16) (a)

Initial state: Take any piece to start.

(Successor function): Attach to another piece.

goal test: All pieces connected with No open ends.

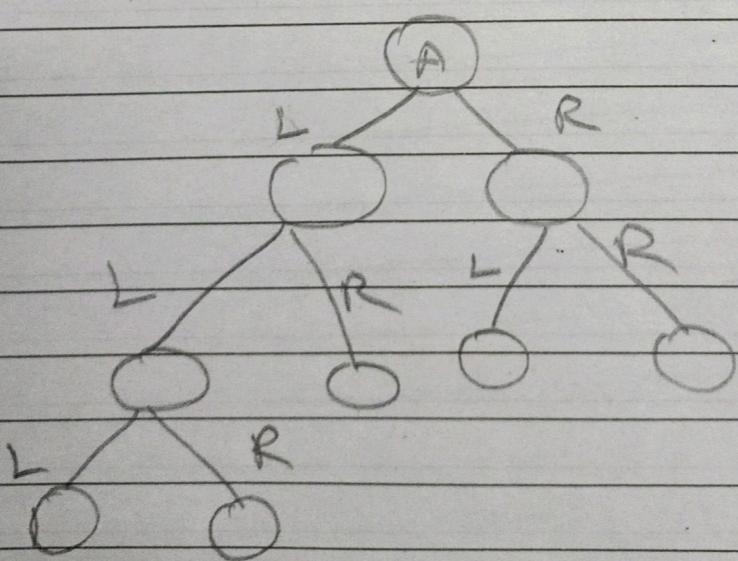
b) DFS, since state space is large in size and has less non valid state.

c) The goal is to finish with no loose ends, by removing either or the fork and split end would occur.

3.20)

(a) Iterative deepening Since its an advance version of DFS which avoids repeated states and redundant path and is completed in finite state space since this state space has cycles.

(b)



Date _____ 20 _____

3.20)

- (c) By seeing the cost.
- (d) Iterative deepening would cover less nodes since nodes of depth out of limit are not traversed.
- (e) Since work expands by a massive factor of $n \times n$. The state space also increases the performance of the reflex agent worsens as it will have lower probability of landing in correct room. (ie dirty room)