CS 534 Homework#1

2.3

a. False, it only having partial information the agent acts only on it, from not having whole information

b. True, it ignores the previous ones so it cannot get an optimal state estimate won't be rational

c. True, it is possible like in cases where every reward has the same output

d. False, the difference between the two is agent function takes the whole, but agent program only takes the current percept.

e. False, the agent function is portrayed as a mathematical description, so due to lack of memory it will fail in cases.

f. True, any selection done at random will be rational, since in cases where every action will give the same result.

g. True, yes, it is if the environments don't intersect and are separate by any optimal policy

h. False, yes since the agent acts only on the information it has it will work only on those measures,

i. False, Since the outcomes of the other side is unknown it will lose, even if it does with multiple attempts it will

3.2

a. The robot can face north, south, east, or west which enables it to also move in those direction until they hit a barrier. We can define the state space with a coordinate system where boundaries can be (1,1) and (-1.1). The state space will be infinite as the robot positions are infinite.

b. If we can have an exit node at each branch the corridors for having to change only at intersection. The successor function will be one ahead where in the cost function be the distance traversed. The state space will be 4 times the number of intersections

c. In a case where we can move in any direction, the initial space will be the ceneter of the maze at (0,0) and then will be similarly till the exit node. The successor function is to reach the next intersection and the total cost will be total distance traversed.

d. We ignored multiple things like natural cases such as wind which can affect the robot, we did not account for other entites in the space scenarios such as multi robot system in there or when considering it we only accounted for North, South, East and west what if it possible to move in a 3D geometric systems rather than a coordinate system.

3.3

a. We will define in a such a way that we take as the possible city combination i and j and let us include variable 'a' and 'b' as successor function so pairs are like (a,i) (b,j)

b. D(I,j)/2 will be, it will be of evenly laid out which enables it.

c. Yes, it is possible when two nodes are connected by one link.

d. If both of them are from the same city then yes, if that then one friend visit same city twice.