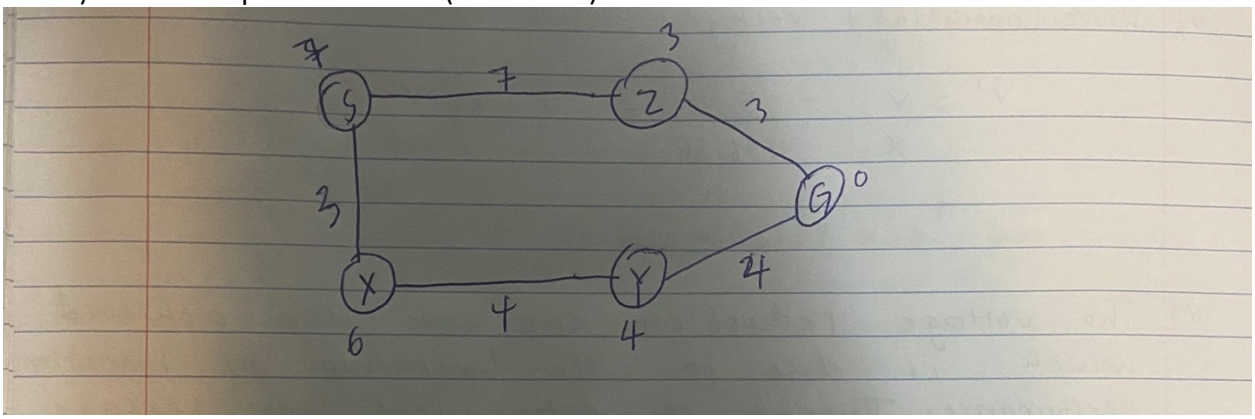
Q1

a. Coding part
b. It would be admissible as the sum of all the move from a given state n to the goal state would be an underestimate of the true costs.
c. Count the number of misplaced tiles in a given state.

Q2

a. Given a state space where there is only one path and the goal state is at depth m, iterative depending will take O(m^2) to reach the goal state while depth first search will take O(m) to reach the goal state.
b. True
   If all the step costs are equal, a path cost from a start state to goal state (n) is just a multiple of the depth n.
c. True
   If h(n) = 0 i.e. heuristic cost estimate from a state(m) to a goal state is equal to 0.
d. False
   Consider the configuration below. The number above the nodes represent the perfect heuristic and the other numbers represent the cost. Best first search yields a path (S -> Z -> G) while the optimal solution (lower cost) is S -> X -> Y -> G.



e. True
   A* search is optimal so its guaranteed to never expand the nodes that are not in the optimal solution path.