CS24F24: Artificial Intelligence
Quiz 2

Name: _____

Problem 1 [(10 + 20 + 30 + 40) = 100 points]

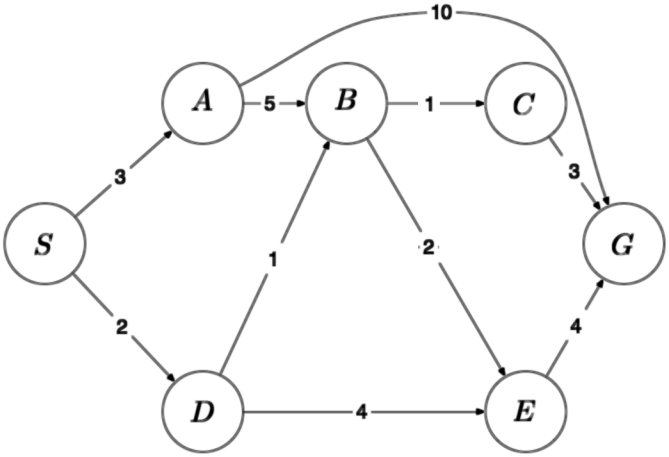

Table 1: State Space

Node	$h_1(n)$	$h_2(n)$
S	7	7
A	5	9
B	4	4
C	3	6
D	2	5
E	2	3
G	0	0

Table 2: Heuristic Functions

Consider the state space graph shown above, where S is the start state and G is the goal state. The costs for each edge are displayed on the graph. Assume that nodes are dequeued in lexicographical order in case of a tie.

For each of the following tree search strategies (do not answer for graph search), write down the path returned and the total cost. Draw the search tree and show the updated fringe after every modification. Also, state the priority value used for each enqueued node.

1. Are $h_1(n)$ and $h_2(n)$ admissible? Justify your answer (in one line).
2. Uniform Cost Search (UCS)
3. Greedy Search using heuristic h_1
4. A* Search using heuristic h_2