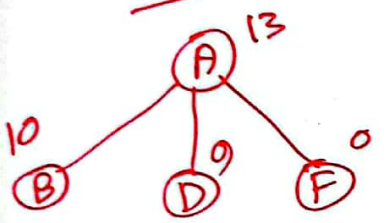
United International University
Department of Computer Science and Engineering
CSE 3811 Artificial Intelligence (Section C),
Class Test 2, Summer 2023
Total Marks: 20, Time: 20 minutes

---

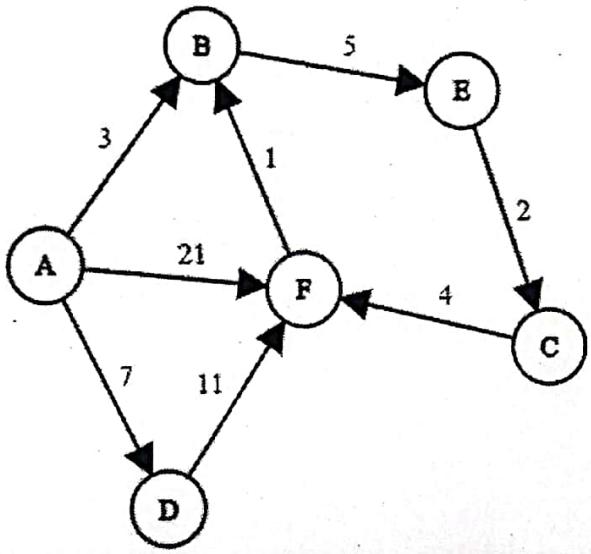
1. Consider the state-space graph in the following figure and heuristic values given in the table. Considering **A** as the start node and **F** as the goal node, find out the solution paths and costs returned by the following tree-search algorithms. In case of ties, use alphabetical order to choose nodes. [5+9]

   a. Greedy best first search b. A* search

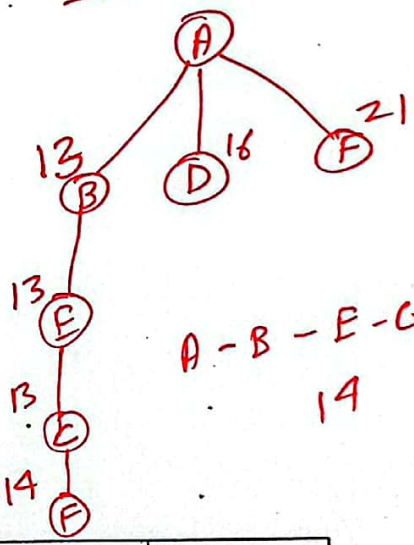
Greedy



A - F
= 21



A* Search



A - B - E - C - F
14

n	A	B	C	D	E	F
h(n)	13	10	3	9	5	0

2. Suppose you have two admissible heuristics, h1 and h2. You decide to create the following new heuristic functions defined as follows:

   h3(n) = max(h1(n), h2(n)) —— admissible
   h4(n) = max(h1(n), 3 × h2(n)) ✗
   h5(n) = min(h1(n), 3 × h2(n)) —— admissible
   h6(n) = (h1(n) + h2(n))/2 —— admissible

   Among these four which are admissible heuristics? [6]