Assignment Two

Name:	
Student Number:	

Direction:

Please answer all the questions below and hand in your answers before the due day. All work, must be handed in **on time**.

Due day:

May. 10, 2021

Questions:

1. Given an array $A = \{13, 15, 124, 28, 44, 28, 27, 5, 71\}$. Please solve following problems:
    - Arrange A in descending order by **insertion sort**.
    - Arrange A in descending order by **quick sort**.
    - Describe the basic idea of binary search for decrement arrays and give a non-recursive algorithm and also the recursive version.
    - Use above algorithms to find the elements (i.e. 13, 124) and provide necessary details of the searching process.

2. Consider the minimal cost search problem represented in the figure, where a is the start node and there are goal nodes at f and j. For each node, the heuristic cost is indicated on the node, and for each arc, the arc cost is indicated along the arc. What is the upper bound when only the start node has been explored? Which goal node is found first by Branch&Bound? What is the upper bound immediately after the first goal node is found? Is the second goal found by Branch&Bound?