1. [1 point] (True/False + Why) When finding a number x in a list of unordered integers, if one finds a larger number than x then we can terminate the search and output "x is not found."

   **Answer: False**
   **Why:** Given the list is unordered there is no correlation between position of x and other elements in the list. Therefore you cannot terminate search for x until either x is found or entire list has been searched to determine x is in the list or not.

2. [2 points] (True/False + Why?) When finding the largest number sequentially, if the current largest is greater than or equal to the next number, then the next number replaces the current largest.

   **Answer: False**
   **Why:** Current largest keeps track of the largest known so far for the portion of elements looked up. If current largest is already greater than or equal to next number, replacing current largest with a number less than it will make the current largest incorrect.

3. [2 points] (True/False + Why?) The main loop in the pattern-matching algorithm, with the text of size n and a pattern of size m, only needs to try every starting position from 1 through (n-m) in the text for a possible match to test if the pattern matches.

   **Answer: False**
   **Why:** This will not check for the pattern starting at index n-m+1 in text. Therefore the loop should continue from 1 to n-m+1.

4. [1 point] Operating Systems constitute one major category of software. What is the other major category?

   **Answer: Application Software**

5. [1 point] How many bytes are used in the ASCII code for character data? How many for Unicode?

   **ASCII CODE:** ___1___ bytes  **Unicode:** ___2_____ bytes

6. [1 point] What is the least number of bits required to be able to provide a unique binary code for 555 different items in an inventory?

   **Answer:** 10

7. [1 point] A Java source program is compiled into a **class file (or byte-code)** which is then interpreted by a Java Virtual Machine and executed.

8. [1 point] In the compilation approach to programs in higher-level language, the source code is first translated into **assembly language** and then into **machine language**.