1. In python, why does comparing the equality of two floats using the double equals operator, ==, sometimes lead to program errors.

2. For each of the following snippets of Python code, give what would be printed to the command line if run. If the snippet will not print anything because of an error, just put error.

   (a) ```python
   print(7 > 9 or 9 < 7)
   ```

   (b) ```python
   spam = "abcd"
   print(spam[2:4] + spam[0:2])
   ```

   (c) ```python
   spam = list(range(1, 6, 2))
   eggs = []
   for i in range(len(spam) - 1):
       eggs.append(spam[i] + spam[i + 1])
   print(eggs)
   ```

   (d) ```python
   def spam(eggs):
       eggs = eggs + 1
   eggs = 2
   spam(eggs)
   print(eggs)
   ```

   (e) ```python
   def spam(eggs):
       eggs.append(1)
   eggs = [2]
   spam(eggs)
   print(eggs)
   ```

3. What is the floating point binary number $1.11 \times 10^1$ in decimal?

4. What is the decimal value of the largest integer that can be represented with 8 bits?

5. Write a function that takes a list of numbers and returns a new list of numbers that is equivalent to the input list with all negative numbers removed.

6. Write a function that takes a string and returns a new string equivalent to the input string with all letters that are preceded by a space capitalized. Assume that the input string is at least one character long. The string method 'upper()' can be used to create a new string with all lowercase letters converted to uppercase.