Practice Quiz 01

1. Define the following terms: Practice Note: I will select at most three of the following terms
   - embedded system
   - real-time system
   - concurrent program
   - atomic action
   - mutual exclusion
   - critical section
   - deadlock
   - development board
   - memory-mapped I/O
   - port-mapped I/O

2. What is the difference between parallelism and concurrency?

3. Can a program on a single-core processor be parallel? Can a program on a single-core processor be concurrent? Why or why not?

4. What is one of the major constraints in an embedded system that may not be present in other forms of computing?

5. Give one pro and one con of ⟨⟨memory-mapped, port-mapped⟩⟩ I/O in an embedded system.

6. What is the difference between a C constant and a C macro (created with the #define directive)?

7. What bytes and bits would you need to set for the Arduino pin ⟨⟨some pin number⟩⟩ to be in ⟨⟨input, output, input pullup⟩⟩ mode?
8. Write the C code necessary to set bit \( (0 - 7) \) to \( (0, 1) \) without changing any other bits.

9. Describe the following statement(s) in English. Practice Note: I’ll put one of our \#define statements from the class examples. You should describe what it does in terms of type casting, addresses, etc. (ask if you’d like my 'standard answer' here).