

CS 6311 – Programming Languages I – Fall 2006

Quiz #2 (20 pts)

Monday, 8/28/6

NAME:

1. True or False. A system with two or more CPUs is capable of parallel programming, but not concurrent programming. (2 pts)

False.

2. Which of the two main paradigms does the language Python belong to? (2 pts)

Imperative.

3. Given an example of a property that is bound at run-time. (2 pts)

A value to a variable.

4. What is another name for the built-in data types of a programming language? (2 pts)

Primitive type.

5. Intensionally define the event-driven subparadigm. (3 pts)

The paradigm where the program is a continuous loop that waits to respond to events that occur in an unpredictable order.

6. Describe two characteristics of declarative languages. (4 pts)

A couple are:

- Non-destructive assignment of variables.
- The programmer is not responsible for the control of execution, the underlying system provides the control.
- Specify what is to be computed, instead of how it is to be computed.

7. Explain why the von Neumann bottleneck is such an important factor for imperative languages. (5 pts)

The von Neumann bottleneck is an important factor for imperative languages, because the imperative languages are designed around this architecture. In this architecture, data and the instructions are stored in memory which is separate from the CPU. For each instruction to execute it must get the instruction and data from memory and bring it to the CPU. Therefore, the speed of transmission between the memory and CPU affect the overall speed of the program. With the imperative languages having step-by-step execution of instructions and destructive assignment of variables where the variables in memory must be updated, an imperative program is not capable of running any faster than that permitted by the connection between memory and the CPU.