

Name: _____ Last Name: _____

1. A computer at a federal laboratory that continually executes sophisticated algorithms on massive amounts of data from various weather stations to develop accurate weather forecasts.
 - Embedded
 - PC
 - Server
2. Software as a Service refers to installing large software applications on a PC, such as Microsoft Office.
 - True
 - False
3. Match the situation with the closest analog of a great idea in computer architecture.

- **D Make the Common Case Fast**
- **B Hierarchy of Memories**
- **A Design for Moore's Law**
- **C Use Abstraction to Simplify Design**

- a. A soccer player runs not to where the ball is, but to where the ball will be.
- b. A customer talks to a phone agent. If there's a problem, he talks to the agent's supervisor.
- c. A house architect first designs a house with 5 rooms, then designs room details like closets, windows, and flooring.
- d. A college student rents an apartment closer to campus than to her favorite weekend beach spot.

4. Match the situation with the closest analog of a great idea in computer architecture.

- **C Performance via Prediction**
- **A Performance via Parallelism**
- **B Performance via Pipelining**
- **D Dependability via Redundancy**

- a. A sister is hanging clothes to dry. Her brother helps by hanging clothes simultaneously.
- b. A brother is washing and drying dishes. His sister helps by drying each dish immediately after the brother washes each.
- c. A mom expects her son will be hungry after a long airplane flight, so she cooks dinner just in case. If he's not hungry, she'll whip up a dessert instead.
- d. A drummer's stick breaks, but he quickly grabs another one and continues playing the song.

5. Although binary's alphabet contains only two "letters", 0 and 1, the binary alphabet can represent as much information as the English alphabet's 26 letters.
- True
 - False
6. The number 12 can be represented in binary as 1100. If a computer's memory location contains 00001100, then that location contains the number 12.
- True
 - False
7. The following could be a machine-language instruction: 1000110010100000.
- True
 - False
8. The following could be an assembly language instruction: 1000110010100000.
- True
 - False
9. An assembler translates assembly language instructions like *add A,B* to machine-language instructions like 1000110010100000.
- True
 - False
10. Which is a high-level language instruction?
- 000000001010001000000000100011000

- add \$2, \$4, \$2
- temp = v[k];

11. What kind of language is C?

- Machine
- Assembly
- High-level

12. An advantage of a high-level language is allowing a programmer to _____.

- think more naturally
- think like a machine

13. An advantage of a high-level language is enabling a programmer to _____.

- change a program
- implement a program in less time

14. An advantage of a high-level language is that a program _____.

- is specific to a particular machine
- is independent of a particular machine

15. The five components of a computer.

- **D Control**
- **A Input**
- **C Memory**
- **B Output**
- **E Datapath**

- a. Writes data to memory. Ex: Keyboard.
- b. Reads data from memory. Ex: Display.
- c. Stores instructions and data.
- d. Sends signals that determine the operation of the other components.
- e. Performs computations.

16. RAM and cache.

- **A DRAM**
- **C Cache**
- **B SRAM**

- a. Large memory where most data is stored.
- b. A faster memory technology than DRAM, but using more area to store a bit.
- c. A small memory that keeps a copy of data from larger memory.

17. An instruction set architecture enables a machine language program to run on different hardware implementations.

- True
- False

18. While different hardware implementations may run the same program, designers strive to keep the performance of new hardware implementations the same as older implementations.

- True
- False

19. Memories.

- **D Nonvolatile memory**
- **C Volatile memory**
- **8 Flash memory**
- **B Secondary memory**
- **E Magnetic disk**
- **A Main memory**

- a. Memory layer used to hold programs and data while programs are running.
- b. Memory layer used to store programs and data between runs.
- c. A form of memory that retains data only if the memory is receiving power.
- d. A form of memory that retains data in the absence of a power.

- 8. A nonvolatile semiconductor memory often used as secondary memory for personal mobile devices.
- e. A form of nonvolatile secondary memory composed of rotating platters coated with a magnetic recording material

20. The CPU chip physically occupies _____ of the size of the iPad 2.

- most
- a small fraction

21. The iPad 2 consists of how many chips?

- 1
- 2
- 5

22. The A5 package has a chip containing _____ ARM processors.

- 1
- 2
- 5

23. A CPU is also known as _____.

- a datapath
- control
- a processor

