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**Multiple Choice**

1. A(n) \_\_\_\_\_ is a set of instructions that a computer follows to perform a task.

**Answer:** B. Program.

1. The physical devices that a computer is made of are referred to as \_\_\_\_\_\_.

**Answer:** A. Hardware.

1. The part of the computer that runs programs is called \_\_\_\_\_\_\_\_\_. **Answer:** D. The CPU.
2. Today, CPUs are small chips known as \_\_\_\_\_\_. **Answer:** B. Microprocessors.
3. The computer stores a program while the program is running, as well as the data that the program is working with in \_\_\_\_\_\_\_\_. **Answer:** C. Main memory.
4. \_\_\_\_\_ is a volatile type of memory that is used only for temporary storage while a program is running. **Answer:** A. RAM.
5. A type of memory that can hold data for long periods of time – even when there is no power to the computer – is called \_\_\_\_\_\_. **Answer:** C. Secondary storage.
6. A component that collects data from people or other devices and sends it to the computer is called \_\_\_\_\_\_. **Answer:** B. An input device.
7. A video display is a(n) \_\_\_\_\_ device. **Answer:** A. Output device.
8. A \_\_\_\_\_\_ is enough memory to store a letter of the alphabet or a small number.

**Answer:** A. Byte.

1. A byte is made up of eight \_\_\_\_\_\_\_. **Answer:** D. Bits.
2. In the \_\_\_\_\_\_\_ numbering system, all numeric values are written as sequences of 0s and 1s. **Answer:** B. Binary.
3. A bit that is turned off represents the following value: \_\_\_\_\_\_\_. **Answer:** C. 0.
4. A set of 128 numeric codes that represent the English letters, various punctuation marks, and other characters is \_\_\_\_\_\_\_\_\_\_. **Answer:** B. ASCII.
5. An extensive encoding scheme that can represent the characters of many of the languages in the world is \_\_\_\_\_\_\_. **Answer:** C. Unicode.
6. Negative numbers are encoded using the \_\_\_\_\_\_ technique. **Answer:** A. Two’s complement.
7. Real numbers are encoded using the \_\_\_\_\_\_ technique. **Answer:** B. Floating point.
8. The tiny dots of color that digital images are composed of are called \_\_\_\_\_\_. **Answer:** D. Pixels.
9. If you were to look at a machine language program, you would see \_\_\_\_\_\_.

**Answer:** B. A stream of binary numbers.

1. In the \_\_\_\_\_ part of the fetch-decode-execute cycle, the CPU determines which operation it should perform. **Answer:** B. Decode.
2. Computers can execute only programs that are written in \_\_\_\_\_. **Answer:** C. Machine Language.
3. The \_\_\_\_\_\_\_\_ translates an assembly language program to a machine language program. **Answer:** A. Assembler.
4. The words that make up a high-level programming language are called \_\_\_\_\_\_\_\_. ‘

**Answer:** D. Keywords.

1. The rules that must be followed when writing a program are called \_\_\_\_\_\_. **Answer:** A. Syntax.
2. A(n) \_\_\_\_\_ is a program that translates a high-level language program into a separate machine language program. **Answer:** B. Compiler.
3. A \_\_\_\_\_\_\_ is any hypothetical person using a program and providing input for it.

**Answer:** B. User.

1. A \_\_\_\_\_\_ error does not prevent the program from running but causes it to produce incorrect results. **Answer:** C. Logic.
2. A(n) \_\_\_\_\_\_\_ is a set of well-defined logical steps that must be taken to perform a task.

**Answer:** D. Algorithm.

1. An informal language that has no syntax rules and is not meant to be compiled or executed is called \_\_\_\_\_\_\_. **Answer:** B. Pseudocode.
2. A \_\_\_\_\_\_ is a diagram that graphically depicts the steps that take place in a program.

**Answer:** A. Flowchart.

1. Objects that are visible in a program’s graphical user interface are commonly referred to as \_\_\_\_\_\_\_\_. **Answer:** B. Controls.
2. A \_\_\_\_\_\_\_ is code that describes a particular type of object. **Answer:** D. Class.
3. The \_\_\_\_\_\_\_\_ is a collection of classes and other code that can be used, along with a programming language such as C#, to create programs for the Windows operating system. **Answer:** A. .NET framework.
4. The \_\_\_\_\_\_\_ is the part of a computer with which the user interacts. **Answer:** B. User interface.
5. Before GUIs became popular, the \_\_\_\_\_\_\_ interface was the most commonly used.

**Answer:** A. Command line.

1. \_\_\_\_\_\_\_ programs are usually event driven. **Answer:** C. GUI.

**True or False**

1. Today, CPUs are huge devices made of electrical… you get the message. **Answer:** False.
2. Main memory is also known as RAM. **Answer:** True.
3. Any piece of data that is stored in a computer’s memory must be stored as a binary number. **Answer:** True.
4. Images, such as the ones you make with your digital camera, cannot be stored as binary numbers. **Answer:** False.
5. Machine language is the only language that a CPU understands. **Answer:** True.
6. Assembly language is considered a high-level language. **Answer:** False.
7. An interpreter is a program that both translates and executes the instructions in a high-level language program. **Answer:** True.
8. A syntax error does not prevent a program from being compiled and executed. **Answer:** False.
9. Windows, Linux, UNIX, and Mac OS are all examples of application software. **Answer:** False.
10. Word processing programs, spreadsheet programs, e-mail programs, Web browsers, and games are all example of utility programs. **Answer:** False.
11. Programmers must be careful not to make syntax errors when writing pseudocode programs. **Answer:** False.
12. C# provides only the basic keywords and operators that you need to construct a program. **Answer:** True.

**Short Answer**

1. Why is the CPU the most important component in a computer? **Answer:** Because it’s what allows a computer to run any programs, including utility programs, like operating systems. No CPU, no operating system, no functional computer.
2. What number does a bit that is turned on represent? What number does a bit that is turned off represent? **Answer:** A turned on bit represents 1, while a turned off bit represents 0.
3. What would you call a device that works with binary data? **Answer:** A digital device.
4. What are the words that make up a high-level programming language? **Answer:** The words that make up such a language are known as “keywords”.
5. What are the short words that are used in assembly language called? **Answer:** Those are known as “mnemonics”.
6. What is the difference between a compiler and an interpreter? **Answer:** An interpreter both translates and executes a high-level language program into machine language, while a compiler only translates it.
7. What type of software controls the internal operations of the computer’s hardware? **Answer:** An operating system does that.
8. What is pseudocode? What is a flowchart? **Answer:** Pseudocode is an easier way to write out and understand an algorithm (a set of clearly-defined logical steps for how to go about performing a task) by putting it into plain English (or whatever language you speak), as opposed to the actual code. A flowchart serves the same purpose as pseudocode, except it graphically depicts the steps instead.
9. When a program runs in a text-based environment, such as a command line interface, what determines the order in which things happen? **Answer:** The program itself.
10. What does a class specify about an object? **Answer:** What kind of data it is made up of, and what it can do.
11. Can you use C# alone to perform advanced operations such as creating GUIs, reading data from a file, or working with databases? Why or why not? **Answer:** No. C# works with the .NET Framework, and the ability to do all of those things actually comes from the .NET Framework.
12. Figure 1-49 shows the Visual Studio IDE. What are the names of the four areas that are indicated in the figure? **Answer:** There’s the Toolbox, the Designer window, the Solution Explorer window, and the Properties window.
13. What is the purpose of the *Toolbox* in the Visual Studio environment? **Answer:** To allow the user to create controls in a GUI environment.
14. How can you access the documentation for Visual Studio? What resources are provided by the MSDN Library? **Answer:** You can either click *Help* on the menu bar, and then *View Help*, or you can just hit CTRL + F1, and then the V key. The MSDN Library provides complete documentation for C# and other programming languages in Visual Studio, along with code samples, text-based and video-based tutorials, and various informative articles.
15. What steps must you take to open an existing project? **Answer:** Click *File* on the menu bar near the top of the screen, then hover the mouse over *Open* in the dropdown menu, and then click on *Project /Solution*. After that, the *Open Project* window will open, to which you choose the solution folder you’re searching for, and click *Open* down in the bottom-right corner of the *Open Project* window.
16. How can you view the project’s form if it is not automatically displayed in the *Designer*? **Answer:** Right click the form you want to view in the *Solution Explorer*, and then click *View Designer* in the menu that comes up.

**A couple of bonus programming problems**

1. Use what you’ve learned about the binary numbering system to convert the following decimal numbers to binary: 11 = 1011, 65 = 1000001, 100 = 1100100, 255 = 11111111
2. Use what you’ve learned blah blah blah binary numbers to decimal: 1101 = 13, 1000 = 8, 101011 = 43.