Chapter 1 Study Guide
Introduction to Computers and Programming

1. What Is a Computer?

A computer follows a set of step-by-step instructions called a **Program** .

2. Hardware and Software

The two main categories of software are **System** and **Application** .

3. How Computers Store Data

Binary (base **2**) matches the computer's **On/off** states.

4. Why Other Bases Matter

Base 8 is **Octal** ; Base 16 is **Hexadecimal** and represents **Binary values** .

5. Storing Characters – ASCII and Unicode

ASCII stands for **American standard** Code for Information Interchange; uppercase A = **65** . Unicode supports

International languages.

6. Other Digital Data

A digital image is made of tiny dots called Pixels, each stored as a Numeric value.

7. CPU Cycle

The CPU repeats the Fetch – Decode – Execute cycle.

8. From Machine Language to High-Level Languages

Python is a High-level language translated by a Compiler or Interpreter.

9. Writing and Running Python Programs

Python program files use the extension Py.

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10. Quick Review Blanks

1. A byte contains 8 bits.
2. Binary uses digits 0 and 1.
3. Largest value in one byte = 255.
4. ASCII code for ‘A’ = 65.
5. A hexadecimal number contains 16 digits.
6. Unicode is compatible with ASCII.

7. CPU follows the **Fetch-decode-execute** cycle.
8. Python files end with **Py** .
9. A(n) **Program** is a set of instructions that a computer follows to perform a task.
10. The physical devices that a computer is made of are referred to as **Hardware** .
11. The part of a computer that runs programs is called **The cpu** .
12. Today, CPUs are small chips known as **Microprocessors** .
13. The computer stores a program while the program is running, as well as the data that the program is working with, in **Main memory** .
14. This is a volatile type of memory that is used only for temporary storage while a program is running **RAM** .
15. A type of memory that can hold data for long periods of time, even when there is no power to the computer, is called **Secondary storage** .
16. A component that collects data from people or other devices and sends it to the computer is called **An input device** .
17. A video display is a(n) **Output** device.
18. A **Byte** is enough memory to store a letter of the alphabet or a small number.
19. A byte is made up of eight **Bits** .
20. In the **Binary** numbering system, all numeric values are written as sequences of 0s and 1s.
21. A bit that is turned off represents the following value: **0** .
22. A set of 128 numeric codes that represent the English letters, various punctuation marks, and other characters is **ASCII** .
23. An extensive encoding scheme that can represent characters for many languages in the world is **Unicode** .
24. Negative numbers are encoded using the **two's complement** technique.
25. Real numbers are encoded using the **Floating point** technique.
26. The tiny dots of color that digital images are composed of are called **Pixels** .

27. If you were to look at a machine language program, you would see a stream of **Binary numbers** .
28. In the **Decode** part of the fetch-decode-execute cycle, the CPU determines which operation it should perform.
29. Computers can only execute programs that are written in **Machine language** .
30. The **Assembler** translates an assembly language program to a machine language program.
31. The words that make up a high-level programming language are called **Keywords** .
32. The rules that must be followed when writing a program are called **Syntax** .
33. A(n) **Compiler** program translates a high-level language program into a separate machine language program.