REVIEWING THE BASICS

1. Why is all data stored in a computer in binary form?

Binary is the format that the computer “understands,” not a programming language or a human language. All instructions between hardware and software in a computer are reduced to a simple yes or no, a state of on or off.

2. What are the four primary functions of hardware?

Input, processing, output, and storage

3. What are the two main input devices and two main output devices?

The two main input devices are the keyboard and the mouse. The two main output devices are the monitor and the printer.

4. What three things do electronic hardware devices need in order to function?

A method for the CPU to communicate with the device, software to instruct and control the device, and electricity to power the device

5. How many bits are in a byte?

Eight

6. What is the purpose of an expansion slot on a motherboard?

An expansion slot on a motherboard is used for an expansion card, which enables a device that is not on the motherboard to communicate with the CPU.

7. Which component on the motherboard is used primarily for processing?

The CPU (central processing unit), also called the processor
8. Name the two main CPU manufacturers.

Intel and AMD

9. Order the following ports according to speed, placing the fastest port first: FireWire, eSATA, USB.

eSATA, FireWire, USB

10. What are two other names for the system bus?

Possible answers: Memory bus, host bus, front side bus, external bus

11. What type of output does a S/PDIF port provide?

High quality sound to an audio system

12. Why is an SSD hard drive more reliable under rugged conditions than an IDE hard drive?

Because the SSD drive has no moving parts

13. How is the best way to determine if a cable inside a computer is a data cable or a power cable?

Follow the cable from its source to its destination

14. List three types of ports that are often found coming directly off the motherboard to be used by external devices.

Possible answers: Serial port, parallel port, USB port, network port, FireWire or 1394 port, mouse port, keyboard port, S/PDIF port, sound port, wireless LAN antenna port

15. What is the purpose of the S/PDIF port?
The S/PDIF port connects to an external home theater audio system, providing digital output and the best signal quality.

16. What is the most common type of memory module?

DIMM

17. What is the difference between volatile and nonvolatile memory?

Volatile memory is temporary and needs a constant electrical charge to hold data. Nonvolatile memory is permanent and holds memory even when electricity is turned off.

18. Of the two types of storage in a system, which type is generally faster and holds data and instructions while the data is being processed? Which type of storage is generally slower, but more permanent?

Primary storage, secondary storage

19. What technology standard provides for up to four devices on a system, including the hard drive as one of those devices? What are two common industry names loosely used to describe this standard?

PATA (parallel ATA), also called EIDE (enhanced integrated drive electronics) or IDE

20. What is the measurement of frequency of a system bus and CPU? Which is faster, the system bus or the CPU?

Frequency is generally measured in Hz, MHz, or GHz. The CPU is faster than the system bus.

21. Name three types of buses that are likely to be on a motherboard today.

Possible answers: PCI (Peripheral Component Interconnect), AGP (Accelerated Graphics Port), PCI Express, system bus
22. A power supply receives 120 volts of ___ power from a wall outlet and converts it to 3.3, 5, and 12 volts of ___ power.

AC, DC

23. ROM BIOS or firmware chips that can be upgraded without replacing the chips are called ________.

Flash ROM

24. CMOS setup allows a technician to change configuration settings on a motherboard stored in ________.

CMOS RAM

25. Name three examples of secondary storage devices.

Some possible answers: CD drive, hard drive, floppy drive, DVD drive, Zip drive, Blu-ray drive

26. A hertz is ________ cycle per second; a megahertz is ________ cycles per second, and a gigahertz is ________ cycles per second.

A hertz is one cycle per second.

A megahertz is one million cycles per second.

A gigahertz is one billion cycles per second.

27. An AGP slot is normally used for a(n) ________ expansion card.

Video
28. How many sizes of PCI Express slots are currently manufactured for personal computers?

Four

29. Name the three purposes the motherboard ROM BIOS serves?

The BIOS is used to manage simple devices (system BIOS), the BIOS is used to start the computer (startup BIOS), and the BIOS is used to change settings on the motherboard (CMOS setup).

30. From where does CMOS RAM receive its power when the computer is not turned on?

CMOS RAM is powered by a trickle of electricity from a small battery located on the motherboard or computer case.

THINKING CRITICALLY

1. When selecting secondary storage devices for a new desktop PC, which is more important, a CD-ROM drive or a floppy drive? Why?

A CD-ROM drive, because most software today is distributed on CD

2. Based on what you have learned in this chapter, when working on a Microsoft Word document, why is it important to save your work often? Explain your answer using the two terms, primary storage and secondary storage.
Because data is temporarily stored in RAM or primary storage, which is volatile. If the power is lost, all data in primary storage is lost. In order to secure the data, it must be copied from primary storage to secondary storage, such as a hard drive or floppy disk, which is nonvolatile or permanent storage.

3. Most buses are 16, 32, 64, or 128 bits wide. Why do you think these bus widths are multiples of eight?

Because everything in a computer is stored and processed in binary, and 1 byte equals 8 bits

4. You purchase a new computer system that does not have a modem port, and then you decide that you want to use a dial-up connection to the Internet. What is the least expensive way to obtain a modem port?

   a. Trade in the computer for another computer that has a modem port
   
   b. Purchase a second computer with a modem port
   
   c. Purchase a modem card and install it in your system
   
   d. Purchase an external modem that connects to your PC by way of a USB port

Answer: c. Purchase a modem card and install it in your system

5. In this chapter, a light bulb is used to demonstrate the binary concept used for computer storage and communication. Give another example in everyday life to explain this binary concept. Get creative.
Possible answer: A water hydrant is either on or off. It's difficult to measure the amount of water coming out of the hydrant, but not difficult to decide if the water is off or on.

6. If the CMOS battery inside your computer system died, when you first turn on your system, will you expect the system to boot up normally to the operating system level? What information do you think the system would not have available for a successful boot?

No, the system will not boot normally because the configuration information would not be available. This information includes the type hard drive and floppy drive installed and the boot sequence.

7. Which device is a solid state device, a CD drive or a memory module? Why?

A memory module is a solid state device because it has no moving parts.