

## Chapter 1: Computer Hardware

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### TRUE/FALSE

1. Input can be supplied by a person, by the environment, or by another computer.

ANS: T                    PTS: 1                    REF: 3

2. In the context of computing, software refers to symbols that represent facts, objects, and ideas.

ANS: F                    PTS: 1                    REF: 3

3. In a computer, most processing takes place in a component called the central processing unit (CPU), which is sometimes described as the computer's "brain."

ANS: T                    PTS: 1                    REF: 3

4. Most computers have only one location for storing data.

ANS: F                    PTS: 1                    REF: 3

5. The terms "computer chip," "microchip," and "chip" originated as technical jargon for "integrated circuit."

ANS: T                    PTS: 1                    REF: 8

6. A digital device works with continuous data.

ANS: F                    PTS: 1                    REF: 9

7. The arithmetic logic unit uses registers to hold data that is being processed.

ANS: T                    PTS: 1                    REF: 12

8. ROM circuitry holds hardwired instructions that are a permanent part of the circuitry and remain in place even when the computer power is turned off.

ANS: T                    PTS: 1                    REF: 13

9. Most computers include a CD drive or DVD drive that uses a magnet to read data stored on plastic-coated CDs and DVDs.

ANS: F                    PTS: 1                    REF: 14

10. A CD (compact disc) provides 1650–1700 MB of storage space for computer data.

ANS: F                    PTS: 1                    REF: 15

### COMPLETION

1. A(n) \_\_\_\_\_ is a multipurpose device that accepts input, processes data, stores data, and produces output, all according to a series of stored instructions.

ANS: computer

PTS: 1 REF: 3

2. \_\_\_\_\_ is an area of a computer that temporarily holds data waiting to be processed, stored, or output.

ANS: Memory

PTS: 1 REF: 3

3. \_\_\_\_\_ is the area where data can be left on a permanent basis when it is not immediately needed for processing.

ANS: Storage

PTS: 1 REF: 3

4. The \_\_\_\_\_ is the component that holds the computer's circuit boards, CPU, power supply, memory, and storage devices.

ANS: system unit

PTS: 1 REF: 7

5. A(n) \_\_\_\_\_ is a super-thin slice of semiconducting material packed with microscopic circuit elements, such as wires, transistors, capacitors, logic gates, and resistors.

ANS: integrated circuit

PTS: 1 REF: 8

6. The term \_\_\_\_\_ system usually refers to a desktop or notebook computer and all the input, output, and storage devices connected to it.

ANS: personal computer

PTS: 1 REF: 7

7. A(n) \_\_\_\_\_ is composed of eight bits and it is abbreviated as an uppercase "B."

ANS: byte

PTS: 1 REF: 11

8. Unlike disk storage, most \_\_\_\_\_ is volatile, which means it requires electrical power to hold data.

ANS: RAM

PTS: 1 REF: 13

9. A(n) \_\_\_\_\_ drive is the main storage device in most computer systems.

ANS: hard disk

PTS: 1 REF: 14

10. The \_\_\_\_\_ process consolidates all parts of a file into nearby areas of the disk, so that the disk drive can easily access them.

ANS: defragmentation

PTS: 1 REF: 18

### MULTIPLE CHOICE

1. Computer \_\_\_\_ is whatever is typed, submitted, or transmitted to a computer system.

a. input  
b. output  
c. data  
d. circuitry

ANS: A PTS: 1 REF: 3

2. Examples of input that a computer can accept include \_\_\_\_.

a. audio signals from a microphone  
b. temperatures from a thermostat  
c. instructions from a computer program  
d. all of the above

ANS: D PTS: 1 REF: 3

3. Computers manipulate data in many ways, and this manipulation is called \_\_\_\_.

a. upgrading  
b. processing  
c. batching  
d. utilizing

ANS: B PTS: 1 REF: 3

4. A(n) \_\_\_\_ is software that helps a computer control itself to operate efficiently and keep track of data.

a. application system  
b. software system  
c. hardware system  
d. operating system

ANS: D PTS: 1 REF: 3

5. \_\_\_\_ software helps users “apply” the computer to specific tasks, such as writing documents and editing photos

a. Hardware  
b. Application  
c. Operational  
d. Storage

ANS: B PTS: 1 REF: 3

6. Computer \_\_\_\_ is the result produced by a computer.

a. data  
b. memory  
c. output  
d. input

ANS: C PTS: 1 REF: 3

7. Small notebook computers are sometimes called \_\_\_\_.

a. Netbooks  
b. microlaptops  
c. semilaptops  
d. tinylaptops

ANS: A                    PTS: 1                    REF: 4

8. A \_\_\_\_ computer (also referred to as a laptop), is a small, lightweight personal computer that incorporates the screen, the keyboard, storage, and processing components into a single portable unit.
- a. notebook
  - b. journal
  - c. diary
  - d. briefcase

ANS: A                    PTS: 1                    REF: 4

9. A \_\_\_\_ computer fits on a desk and runs on power from an electrical wall outlet.
- a. mainframe
  - b. tabletop
  - c. PDA-style
  - d. desktop

ANS: D                    PTS: 1                    REF: 4

10. A personal computer is designed to meet the computing needs of a(n) \_\_\_\_.
- a. individual
  - b. department
  - c. company
  - d. city

ANS: A                    PTS: 1                    REF: 4

11. A handheld \_\_\_\_ is typically used as an electronic appointment book, address book, calculator, and notepad.
- a. PDA
  - b. laptop
  - c. desktop computer
  - d. mainframe

ANS: A                    PTS: 1                    REF: 4

12. A handheld computer features a small keyboard or touch-sensitive screen and is designed to fit into a pocket, run on \_\_\_\_, and be used while you are holding it.
- a. batteries
  - b. solar power
  - c. electricity
  - d. magnetic charges

ANS: A                    PTS: 1                    REF: 4

13. The purpose of a \_\_\_\_ is to serve data to computers connected to a network.
- a. personal computer
  - b. server
  - c. both a. and b.
  - d. neither a. nor b.

ANS: B                    PTS: 1                    REF: 5

14. A \_\_\_\_ computer is a portable computing device featuring a touch-sensitive screen that can be used as a writing or drawing pad.
- a. tablet
  - b. notebook
  - c. laptop
  - d. PC

ANS: A                    PTS: 1                    REF: 5

15. Originally designed to accept input from devices called \_\_\_\_, mainframes today are typically accessed by desktop computers.
- a. LCDs
  - b. pods
  - c. ports
  - d. terminals

ANS: D                    PTS: 1                    REF: 5

16. A \_\_\_\_ computer is a large and expensive computer capable of simultaneously processing data for hundreds or thousands of users.
- a. server
  - b. mainframe
  - c. desktop
  - d. tablet

ANS: B                      PTS: 1                      REF: 5

17. A computer falls into the supercomputer category if it is, at the time of construction, one of the \_\_\_\_ computers in the world.
- a. biggest
  - b. fastest
  - c. both a. and b.
  - d. neither a. nor b.

ANS: B                      PTS: 1                      REF: 5

18. A \_\_\_\_ computer network spreads the processing and storage tasks among many computers.
- a. centralized
  - b. coded
  - c. distributed
  - d. contained

ANS: C                      PTS: 1                      REF: 6

19. A \_\_\_\_ computer network depends on a centrally-located computer for processing and storage.
- a. centralized
  - b. coded
  - c. distributed
  - d. contained

ANS: A                      PTS: 1                      REF: 6


20. Networks are monitored by security personnel and supervised by \_\_\_\_ who set(s) up accounts and passwords for authorized network users.
- a. IT managers
  - b. the government
  - c. network administrators
  - d. password administrators

ANS: C                      PTS: 1                      REF: 6

21. \_\_\_\_ is the world's largest network, connecting millions of personal computers, servers, mainframes, and supercomputers.
- a. E-bay
  - b. Amazon
  - c. The U.S. Government
  - d. The Internet

ANS: D                      PTS: 1                      REF: 6

**PORTABLE POWER**



- Intel Core 2 Duo processor
- 2.53 GHz
- 4 GB 533 MHz (max. 8 GB)
- 500 GB HD (7200 rpm)
- 16X CD/DVD double-layer burner
- 8-in-1 card reader
- 15.6" HD (1366 x 768) LCD display
- 512 MB NVIDIA graphics card
- Integrated speakers
- 2.0 MP Webcam
- 4 USB ports
- VGA and HDMI display ports
- 10/100/1000 wired network
- Wireless-N network card
- Microsoft Windows 7 Home Premium 64-bit

22. In the figure above, what does the 512 MB refer to in regards to the graphics card?
- a. Graphics card speed
  - b. Graphics card video memory
  - c. Graphics card resolution output
  - d. Graphics card pixel concentration

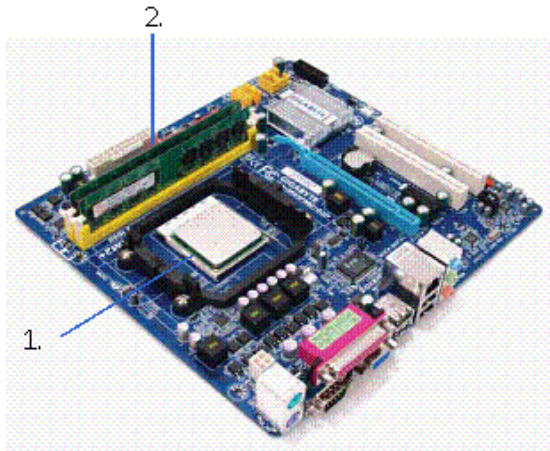
ANS: B                    PTS: 1                    REF: 10

23. In the figure above, the computer specifications lists four USB ports. What can they be used for?
- a. Attaching peripherals such as a keyboard
  - b. Connecting a flash drive
  - c. both a. and b.
  - d. neither a. nor b.

ANS: C                    PTS: 1                    REF: 10

24. In the figure above, what does the 2.53 GHz, found in the first bullet point, refer to?
- a. Microprocessor speed
  - b. Hard disk processor speed
  - c. Network processor speed
  - d. Modem connection speed

ANS: A                    PTS: 1                    REF: 10



25. In the figure above, #1 is pointing to the \_\_\_\_.
- a. ROM chip
  - b. Battery
  - c. Microprocessor
  - d. Memory Chip

ANS: C                    PTS: 1                    REF: 8

26. In the figure above, #2 is pointing to the \_\_\_\_.
- a. ROM chips
  - b. Battery
  - c. Microprocessor
  - d. Memory modules

ANS: D                    PTS: 1                    REF: 8

27. The system unit contains storage devices, a power supply, and the computer's main circuit board, called a \_\_\_\_.
- a. motherboard
  - b. system board
  - c. mainboard
  - d. any of the above

ANS: D                    PTS: 1                    REF: 8

28. Unicode uses \_\_\_\_ bits and provides codes for 65,000 characters—a real bonus for representing the alphabets of multiple languages.
- a. 8
  - b. 12
  - c. 16
  - d. 18

ANS: C                    PTS: 1                    REF: 9

29. A superset of ASCII, called \_\_\_\_ ASCII, uses eight bits to represent each character.
- a. Enhanced
  - b. Extended
  - c. Super
  - d. Complex

ANS: B                    PTS: 1                    REF: 9

30. ASCII requires only \_\_\_\_ bits for each character
- a. 5
  - b. 6
  - c. 7
  - d. 8

ANS: C                    PTS: 1                    REF: 9

31. A(n) \_\_\_\_ device works with discrete—distinct and separate—data, such as the digits 1 and 0.
- a. digital
  - b. analog
  - c. either a. or b.
  - d. neither a. nor b

ANS: A                    PTS: 1                    REF: 9

32. The following is NOT one of today's personal computer platforms: \_\_\_\_.
- a. PC
  - b. Mac
  - c. Firefox
  - d. Linux

ANS: C                    PTS: 1                    REF: 11

33. The ALU performs \_\_\_\_ operations.
- a. arithmetic
  - b. ASCII
  - c. algorithm-based
  - d. logarithm-based

ANS: A                    PTS: 1                    REF: 12

34. \_\_\_\_ microprocessors are designed for specialized tasks, such as monitoring the performance of automobile engines, controlling washing machine spin cycles, or running assembly-line robots.
- a. Mainframe
  - b. Embedded
  - c. both a. and b.
  - d. neither a. nor b.

ANS: B                    PTS: 1                    REF: 12

35. If a read-write head runs into a dust particle or some other contaminant, it can cause a \_\_\_\_ crash, which damages some of the data on the disk.
- a. tail
  - b. head
  - c. top-down
  - d. bottom-up

ANS: B                    PTS: 1                    REF: 14

36. CDs and DVDs are durable storage media because their \_\_\_\_ storage technology essentially etches data onto the disc surface.
- a. optical
  - b. magnetic
  - c. discrete
  - d. static

ANS: A                    PTS: 1                    REF: 15

37. A DVD (digital video disc or digital versatile disc) is a variation of CD technology with a capacity of \_\_\_\_GB.
- a. 2.7
  - b. 3.7
  - c. 4.7
  - d. 5.7

ANS: C                    PTS: 1                    REF: 15

38. A \_\_\_\_ flash drive is a popular removable, portable storage device featuring a built-in connector.
- a. VGA
  - b. USB
  - c. DVI
  - d. floppy

ANS: B                    PTS: 1                    REF: 16

39. ROM contains a small set of instructions called the \_\_\_\_ that tell the computer how to access the hard disk, find the operating system, and load it into RAM.
- a. BIOS
  - b. Processor
  - c. Manager
  - d. Data Store

ANS: A                    PTS: 1                    REF: 13

40. For protection against power outages, you can connect your computer to a(n) \_\_\_\_ power supply that offers battery backup along with surge protection.
- a. uninterruptible
  - b. interruptible
  - c. corrupt-proof
  - d. metered

ANS: A                    PTS: 1                    REF: 17

### Case-Based Critical Thinking Questions

#### Case 1-1

Christina is putting together a presentation for the Marketing Department personnel explaining data storage options. Please answer the three questions below.

41. A Marketing Manager asks Christina what could have caused the recent head crash on his hard drive. Christina explains that this happens when the \_\_\_\_ head runs into a dust particle or some other contaminant.
- a. write
  - b. read
  - c. read-write
  - d. optical

ANS: C                    PTS: 1                    REF: 14                    TOP: Critical Thinking

42. A Marketing Assistant asked if putting a magnet near several CDs would affect the performance of the CDs. Christina explained that it would not have an affect as CDs are read using \_\_\_\_.
- a. small magnets
  - b. a small laser light
  - c. a series of small magnets
  - d. a large laser beam

ANS: B                    PTS: 1                    REF: 14                    TOP: Critical Thinking

43. The Marketing Department Secretary inquired about the difference in transfer rates between a DVD drive versus a Blu-ray drive. A 1X DVD drive can access 10.8 Mbps; a 1X Blu-ray drive handles \_\_\_\_ Mbps.
- a. 20
  - b. 24
  - c. 30
  - d. 36

ANS: D                    PTS: 1                    REF: 15                    TOP: Critical Thinking

### MODIFIED TRUE/FALSE

1. A(n) output device, such as a keyboard or mouse, gathers data and transforms it into a series of electronic signals for the computer to store and manipulate. \_\_\_\_\_



ANS: F, input

PTS: 1 REF: 3

2. The series of instructions that tell a computer how to carry out a processing task is referred to as a(n) computer program. \_\_\_\_\_

ANS: T PTS: 1 REF: 3

3. A(n) computer program forms the software that sets up a computer to do a specific task.  
\_\_\_\_\_

ANS: T PTS: 1 REF: 3

4. A computer network can encompass as few as one or as many as thousands of computers.  
\_\_\_\_\_

ANS: F, two

PTS: 1 REF: 6

5. A microprocessor is a(n) integrated circuit designed to process instructions. \_\_\_\_\_

ANS: T PTS: 1 REF: 8

6. A traditional light switch has two discrete states—on and off—so it is a(n) analog device.  
\_\_\_\_\_

ANS: F, digital

PTS: 1 REF: 9

7. The control unit directs microprocessor tasks. \_\_\_\_\_

ANS: T PTS: 1 REF: 12

8. RAM is a temporary holding area for data, application program instructions, and the operating system.  
\_\_\_\_\_

ANS: T PTS: 1 REF: 13

9. Hard disks use optical storage technology. \_\_\_\_\_

ANS: F, magnetic

PTS: 1 REF: 14

10. USB flash drives use volatile storage technology, which provides fast access to data, and uses very little power. \_\_\_\_\_

ANS: F, solid state

PTS: 1 REF: 16

## ESSAY

1. CDs, BDs, and DVDs come in several varieties. Please describe “ROM,” “R,” and “RW” versions of these types of media.

ANS:

- Read-only (ROM) versions of CDs, DVDs, and BDs contain permanent data stored on the disc during the manufacturing process. Data on CD-ROMs, for example, cannot be changed or deleted. These discs are typically used to distribute software and movies.
- Recordable (R) discs contain a layer of color dye sandwiched beneath the clear plastic disc surfaces. A writable drive can store data on CD-R, DVD-R, and BD-R discs by changing the dye color. The change in the dye is permanent, so data cannot be changed after it has been recorded.
- Rewritable (RW or RE) discs contain a crystal structure on the disc surface. The crystal structure of CD-RW, DVD-RW, CD+RW, DVD+RW, and BD-RE discs can be changed many times, making it possible to record and modify data much like on a hard disk.

PTS: 1

REF: 15

TOP: Critical Thinking

2. Computers can be connected using a centralized or distributed model. Please describe each of these two models.

ANS:

- A centralized computing system depends on a centrally-located computer for processing and storage. A mainframe that services desktop computers is an example of this model. Centralized systems are relatively easy to control, manage, and secure because the main computing hardware is in one place.
- A distributed computer network spreads the processing and storage tasks among many computers. The Internet is an example of a distributed network. Managing and securing a distributed computing system are more difficult than for a centralized system because the locations of files, resources, and machines are often geographically disbursed.

PTS: 1

REF: 6

TOP: Critical Thinking