Chapter 1: Computer Hardware

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

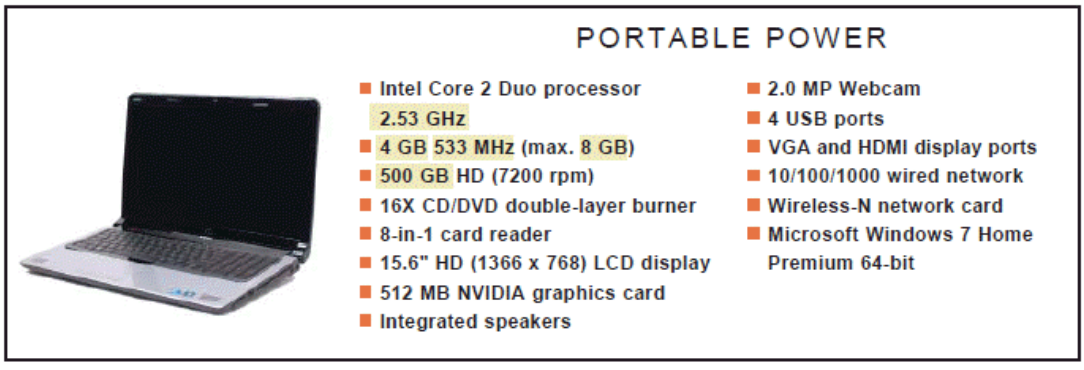
    ANS: A PTS: 1 REF: 6

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



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

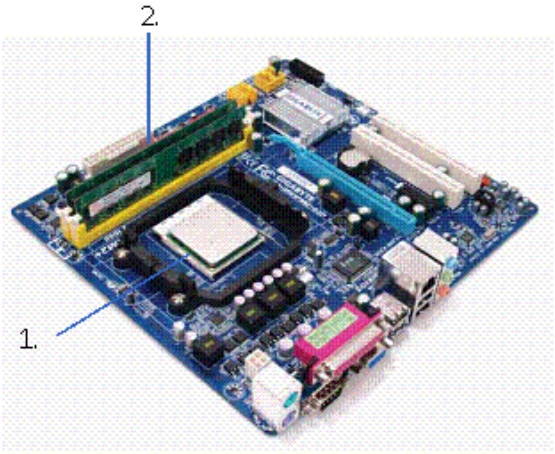
ANS: B PTS: 1 REF: 10

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) <u>output</u> 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