

TEST BANK

Ralph Stair • George Reynolds

Fundamentals of
Information Systems^{10e}



Chapter 2: Hardware and Software

TRUE/FALSE

1. Computer system hardware components include devices that perform the functions of input, processing, data storage, and output.

ANS: T PTS: 1 REF: 62

2. The ability to process (organize and manipulate) data is a critical aspect of a computer system.

ANS: T PTS: 1 REF: 62

3. The components responsible for processing - the CPU and memory - are housed together in the same box or cabinet, called the control unit.

ANS: F PTS: 1 REF: 62

4. The clock speed for personal computers is in the multiple megahertz (MHz), or millions of cycles per second, range.

ANS: F PTS: 1 REF: 63

5. To turn a digital circuit within the CPU on or off, electrical current must flow through a medium (usually silicon) from point A to point B.

ANS: T PTS: 1 REF: 63

6. Memory devices contain thousands of circuits imprinted on a silicon chip.

ANS: T PTS: 1 REF: 63

7. ROM chips are mounted directly on the computer's main circuit board or in chips mounted on peripheral cards that plug into the computer's main circuit board.

ANS: F PTS: 1 REF: 64

8. Key to the success of grid computing is a central server that acts as the grid leader and traffic monitor.

ANS: T PTS: 1 REF: 64

9. Grid computing is a low-cost approach to parallel processing.

ANS: T PTS: 1 REF: 64

10. Secondary storage is called temporary storage.

ANS: F PTS: 1 REF: 66

11. Secondary storage offers the advantages of nonvolatility, greater capacity, and greater economy.

ANS: T PTS: 1 REF: 66

12. Magnetic tape is a direct access storage medium.

ANS: F PTS: 1 REF: 66

13. All forms of secondary storage cost considerably less per megabyte of capacity than SDRAM, although they have slower access times.

ANS: T PTS: 1 REF: 66

14. Solid-state-memory disks (SSDs) that use flash memory are supplementing or replacing traditional hard drives.

ANS: T PTS: 1 REF: 69

15. A keyboard and a computer mouse are the most common devices used for data output.

ANS: F PTS: 1 REF: 69

16. Touch-sensitive screens are frequently used at gas stations for customers to select grades of gas and request a receipt.

ANS: T PTS: 1 REF: 70

17. One popular application of SDRAM is to place a microchip on retail items and install in-store readers that track the inventory on the shelves to determine when shelves should be restocked.

ANS: F PTS: 1 REF: 71

18. Organic light-emitting diodes (OLEDs) can provide sharper and brighter colors than LCDs and CRTs, and OLED displays can be half as thick as LCDs and used in flexible displays.

ANS: T PTS: 1 REF: 74

19. A bar-code scanner can capture data from any card with a magnetic stripe, such as a credit card or driver's license.

ANS: F PTS: 1 REF: 77

20. Notebook computers are those that are small enough to be carried easily.

ANS: T PTS: 1 REF: 77

21. Unlike personal computers, thin clients download software from a network when needed, making support, distribution, and updating of software applications much easier and less expensive.

ANS: T PTS: 1 REF: 77

22. Information systems that operate within the enterprise sphere of influence serve the needs of an individual user.

ANS: F PTS: 1 REF: 80

23. Information systems that operate within the personal sphere of influence support the firm in its interaction with its environment.

ANS: F PTS: 1 REF: 80

24. The role of the operating system is to act as an interface or buffer between users and application software and hardware.

ANS: T PTS: 1 REF: 81

25. Task-management software permits multitasking and time-sharing.

ANS: T PTS: 1 REF: 83

26. The central processing unit ensures that the files in secondary storage are available when needed and that they are protected from access by unauthorized users.

ANS: F PTS: 1 REF: 83

27. New mainframe computers provide the computing and storage capacity to meet massive data processing requirements and provide a large number of users with high performance and excellent system availability, strong security, and scalability.

ANS: T PTS: 1 REF: 87

28. The z/OS is IBM's first 32-bit enterprise OS.

ANS: F PTS: 1 REF: 87

29. Red Hat Linux for IBM mainframe computers is an example of an enterprise operating system.

ANS: T PTS: 1 REF: 87

30. A software component is a collection of single application programs packaged in a bundle.

ANS: F PTS: 1 REF: 96

MULTIPLE CHOICE

1. A ____ consists of two primary elements: the arithmetic/logic unit and the control unit.

- | | |
|---------|----------------------------|
| a. RAID | c. central processing unit |
| b. SAN | d. magnetic tape |

ANS: C PTS: 1 REF: 62

2. The ____ performs mathematical calculations and makes logical comparisons.

- | | |
|--------------------------|-----------------|
| a. RFID | c. control unit |
| b. arithmetic/logic unit | d. keyboard |

ANS: B PTS: 1 REF: 62

3. The ____ sequentially accesses program instructions, decodes them, and coordinates the flow of data in and out of the ALU, primary storage, and even secondary storage and various output devices.

- a. arithmetic logic/unit
- b. RFID
- c. keyboard
- d. control unit

ANS: D PTS: 1 REF: 62

4. Each CPU produces a series of electronic pulses at a predetermined rate, called the ____, which affects machine cycle time.

- a. clock speed
- b. ROM
- c. RAM
- d. flash memory

ANS: A PTS: 1 REF: 63

5. ____ chips lose their contents if the current is turned off or disrupted.

- a. ROM
- b. MP3
- c. RAM
- d. ALU

ANS: C PTS: 1 REF: 64

6. ____ is usually nonvolatile.

- a. ROM
- b. MP3
- c. RAM
- d. ALU

ANS: A PTS: 1 REF: 64

7. ____ speeds processing by linking several processors to operate at the same time.

- a. Multicore microprocessing
- b. RAM
- c. ROM
- d. Parallel processing

ANS: D PTS: 1 REF: 64

8. ____ is the use of a collection of computers, often owned by many people or organizations, to work in a coordinated manner to solve a common problem.

- a. Multicore microprocessing
- b. Grid computing
- c. ROM
- d. Parallel processing

ANS: B PTS: 1 REF: 64

9. ____ involves using a giant cluster of computers that serves as a host to run applications that require high-performance computing.

- a. Grid computing
- b. Parallel processing
- c. Cloud computing
- d. Multiprocessing

ANS: C PTS: 1 REF: 65

10. ____ means that data must be accessed in the order in which it is stored.

- a. RFID
- b. Flash memory
- c. Sequential access
- d. Direct access

ANS: C PTS: 1 REF: 66

11. ____ means that data can be retrieved directly, without having to pass by other data in sequence.

- a. RFID
- b. Flash memory
- c. Sequential access
- d. Direct access

ANS: D PTS: 1 REF: 66

12. The devices used to sequentially access secondary storage data are called ____.

- a. sequential access storage devices
- b. sequential access network devices
- c. direct access network devices
- d. direct access storage devices

ANS: A PTS: 1 REF: 66

13. ____ is a method of storing data so that if a hard drive fails, the lost data on that drive can be rebuilt.
- a. MP3
 - b. Redundant array of independent/inexpensive disks
 - c. Flash memory
 - d. Storage area network

ANS: B PTS: 1 REF: 67

14. A(n) ____ uses computer servers, distributed storage devices, and networks to tie everything together.
- a. MP3
 - b. RAID
 - c. optical disc
 - d. storage area network

ANS: D PTS: 1 REF: 67

15. ____ disks allow data to be written once to a CD disk.
- a. CD-RW
 - b. RAM
 - c. CD-R
 - d. ROM

ANS: C PTS: 1 REF: 68

16. ____ displays are flat displays that use liquid crystals to form characters and graphic images on a backlit screen.
- a. CRT
 - b. DVD
 - c. LCD
 - d. ROM

ANS: C PTS: 1 REF: 72

17. ____ are a type of liquid crystal display that assigns a transistor to control each pixel, resulting in higher resolution and quicker response to changes on the screen.
- a. CRTs
 - b. Thin-film transistor LCDs
 - c. DVDs
 - d. ROMs

ANS: B PTS: 1 REF: 72

18. ____ technology is based on research by Eastman Kodak Company and is appearing on the market in small electronic devices.
- a. Organic light-emitting diode
 - b. Digital audio
 - c. MP3
 - d. Thin client

ANS: A PTS: 1 REF: 74

19. ____ is a popular format for compressing a sound sequence into a very small file while preserving the original level of sound quality when it is played.
- a. API
 - b. HP MPE/iX
 - c. Solaris
 - d. MP3

ANS: D PTS: 1 REF: 75

20. ____ computers are single-user computers that are portable.

- a. Thin client
- b. Server
- c. Handheld
- d. Mainframe

ANS: C PTS: 1 REF: 75

21. A ____ is a small, lightweight PC about the size of a three-ring notebook.

- a. thin client
- b. server
- c. workstation
- d. laptop

ANS: D PTS: 1 REF: 77

22. A ____ is a low-cost, centrally managed computer that is devoid of a DVD player or expansion slots.

- a. server
- b. thin client
- c. mainframe
- d. workstation

ANS: B PTS: 1 REF: 77

23. ____ are relatively small, inexpensive single-user computer systems that are highly versatile.

- a. Workstations
- b. Servers
- c. Desktop computers
- d. Mainframe computers

ANS: C PTS: 1 REF: 77

24. ____ are more powerful than personal computers but still small enough to fit on a desktop.

- a. Workstations
- b. Server systems
- c. Supercomputers
- d. Mainframe computers

ANS: A PTS: 1 REF: 78

25. A computer ____ is a computer used by many users to perform a specific task, such as running network or Internet applications.

- a. mainframe
- b. server
- c. API
- d. HP-UX

ANS: B PTS: 1 REF: 78

26. ____ are the most powerful computer systems with the fastest processing speeds and highest performance.

- a. Mainframe computers
- b. Servers
- c. Workstations
- d. Supercomputers

ANS: D PTS: 1 REF: 79

27. ____ are special-purpose machines designed for applications that require extensive and rapid computational capabilities.

- a. Mainframe computers
- b. Servers
- c. Workstations
- d. Supercomputers

ANS: D PTS: 1 REF: 79

28. A(n) ____ is two or more people who work together to achieve a common goal.

- a. workgroup
- b. GUI
- c. API
- d. multiprocessor

ANS: A PTS: 1 REF: 80

29. ____ can control one computer or multiple computers, or they can allow multiple users to interact with one computer.
- a. Operating systems
 - b. Control units
 - c. Arithmetic/logic units
 - d. ROMs
- ANS: A PTS: 1 REF: 81
30. A ____ allows individuals to access and command the computer system.
- a. workgroup
 - b. user interface
 - c. RFID
 - d. multiprocessor
- ANS: B PTS: 1 REF: 82
31. Applications use the OS by making requests for services through a defined ____.
- a. graphical user interface
 - b. command-based interface
 - c. application program interface
 - d. workgroup
- ANS: C PTS: 1 REF: 82
32. The ability of the computer to handle an increasing number of concurrent users smoothly is called ____.
- a. scalability
 - b. optimization
 - c. multiprogramming
 - d. portability
- ANS: A PTS: 1 REF: 83
33. ____ is an OS developed by Linus Torvalds in 1991 as a student in Finland.
- a. UNIX
 - b. Windows
 - c. DOS
 - d. Linux
- ANS: D PTS: 1 REF: 85
34. ____ is a powerful OS originally developed by AT&T for minicomputers.
- a. UNIX
 - b. NetWare
 - c. DOS
 - d. Linux
- ANS: A PTS: 1 REF: 86
35. ____ is a network OS sold by Novell that can support users on Windows, Macintosh, and UNIX platforms.
- a. MP3
 - b. NetWare
 - c. MPE/iX
 - d. z/OS
- ANS: B PTS: 1 REF: 86
36. The ____ supports IBM's z900 and z800 lines of mainframes.
- a. z/OS
 - b. PalmSource
 - c. MPE/iX
 - d. HP-UX
- ANS: A PTS: 1 REF: 87
37. ____ is a robust UNIX-based OS from Hewlett-Packard designed to handle a variety of business tasks, including online transaction processing and Web applications.
- a. z/OS
 - b. PalmSource
 - c. Linux
 - d. HP-UX
- ANS: D PTS: 1 REF: 87

38. A one-of-a-kind program developed for a specific application is known as ____.
- a. off-the-shelf software
 - b. stand alone software
 - c. proprietary software
 - d. embedded software
- ANS: C PTS: 1 REF: 90
39. The term ____ refers to existing software program that can be purchased.
- a. off-the-shelf software
 - b. stand alone software
 - c. proprietary software
 - d. embedded software
- ANS: A PTS: 1 REF: 90
40. A(n) ____ is a company that can provide the software, support, and computer hardware on which to run software from the user's facilities.
- a. API
 - b. application service provider
 - c. personal information manager
 - d. enterprise planning software provider
- ANS: B PTS: 1 REF: 92

COMPLETION

1. _____ consists of any machinery (most of which uses digital circuits) that assists in the input, processing, storage, and output activities of an information system.
- ANS: Hardware
- PTS: 1 REF: 60
2. Located physically close to the CPU (to decrease access time), _____ provides the CPU with a working storage area for program instructions and data.
- ANS: memory
- PTS: 1 REF: 63
3. Eight bits together form a(n) _____.
- ANS: byte
- PTS: 1 REF: 63
4. _____ involves the simultaneous execution of two or more instructions.
- ANS: Multiprocessing
- PTS: 1 REF: 64
5. _____ provides permanent storage for data and instructions that do not change, such as programs and data from the computer manufacturer, including the instructions that tell the computer how to start up when power is turned on.
- ANS:
Read-only memory (ROM)

Read only memory (ROM)

Read-only memory

ROM

PTS: 1 REF: 64

6. A(n) _____ combines two or more independent processors into a single computer so that they can share the workload and boost processing capacity.

ANS: multicore multiprocessor

PTS: 1 REF: 64

7. A(n) _____ is a five-inch diameter CD-ROM look-alike with the ability to store about 135 minutes of digital video or several gigabytes of data.

ANS:

DVD

digital video disk

digital video disk (DVD)

DVD (digital video disk)

PTS: 1 REF: 68

8. _____ is a silicon computer chip that, unlike RAM, is nonvolatile and keeps its memory when the power is shut off.

ANS: Flash memory

PTS: 1 REF: 69

9. _____ technology enables a computer equipped with a source of speech input such as a microphone to interpret human speech as an alternative means of providing data or instructions to the computer.

ANS:

Speech-recognition

Speech recognition

PTS: 1 REF: 70

10. _____ record and store images or video in digital form.

ANS: Digital cameras

PTS: 1 REF: 70

11. The purpose of a(n) _____ system is to transmit data by a mobile device, called a tag, which is read and processed according to the needs of an information system program.

ANS:

Radio Frequency Identification

RFID

PTS: 1 REF: 71

12. The term _____ is used to describe paper output from a printer.

ANS: hard copy

PTS: 1 REF: 74

13. A(n) _____ player is a device that can store, organize, and play digital music files.

ANS: digital audio

PTS: 1 REF: 75

14. A(n) _____ is a laptop computer weighing less than 3 pounds (1.4 kg) and is usually targeted for use by business travelers.

ANS: ultra laptop

PTS: 1 REF: 76

15. A(n) _____ is a large, powerful computer shared by dozens or even hundreds of concurrent users connected to the machine over a network.

ANS: mainframe computer

PTS: 1 REF: 78

16. Computer _____ are sequences of instructions for the computer.

ANS: programs

PTS: 1 REF: 79

17. The term _____ is used to describe the program functions that help the user operate the computer system.

ANS: documentation

PTS: 1 REF: 79

18. _____ software is the set of programs designed to coordinate the activities and functions of the hardware and various programs throughout the computer system.

ANS: System

PTS: 1 REF: 80

19. _____ software consists of programs that help users solve particular computing problems.

ANS: Application

PTS: 1 REF: 80

20. One of the most important functions of any OS is providing a(n) _____ to access and command the system.

ANS: user interface

PTS: 1 REF: 82

21. A(n) _____ interface requires text commands to be given to the computer to perform basic activities.

ANS:
command-based
command based

PTS: 1 REF: 82

22. A(n) _____ interface uses pictures called icons and menus displayed on screen to send commands to the computer system.

ANS: graphical user

PTS: 1 REF: 82

23. The _____ of an operating system is the part that controls the hardware, manages files, separates processes, and so forth.

ANS: kernel

PTS: 1 REF: 85

24. The _____ Server provides UNIX style process management.

ANS: Mac OS X

PTS: 1 REF: 87

25. _____ makes the Palm operating system that is used in over 30 million handheld computers and smartphones manufactured by Palm, Inc. and other companies.

ANS: ACCESS Systems

PTS: 1 REF: 88

ESSAY

1. What is the difference between parallel processing and grid computing?

ANS:

Parallel processing speeds processing by linking several processors to operate at the same time, or in parallel. The most frequent business uses for parallel processing are modeling, simulation, and analysis of large amounts of data.

Grid computing is the use of a collection of computers, often owned by many people or organizations, to work in a coordinated manner to solve a common problem. Grid computing is one low-cost approach to parallel processing. The grid can include dozens, hundreds, or even thousands of computers that run collectively to solve extremely large parallel processing problems.

PTS: 1 REF: 64

2. Provide a brief description of the following combinations of OSs, computers, and users: single computer with a single user, single computer with multiple users, multiple computers, and special-purpose computers.

ANS:

Single computer with a single user: This system is commonly used in a personal computer or a handheld computer that allows one user at a time.

Single computer with multiple users: This system is typical of larger, mainframe computers that can accommodate hundreds or thousands of people, all using the computer at the same time.

Multiple computers: This system is typical of a network of computers, such as a home network with several computers attached or a large computer network with hundreds of computers attached around the world.

Special-purpose computers: This system is typical of a number of special-purpose computers, such as those that control sophisticated military aircraft, the space shuttle, and some home appliances.

PTS: 1 REF: 81

3. List eight activities executed by the operating system.

ANS:

The activities include:

- Performing common computer hardware functions
- Providing a user interface and input/output management
- Providing a degree of hardware independence
- Managing system memory
- Managing processing tasks
- Providing networking capability
- Controlling access to system resources
- Managing files

PTS: 1 REF: 81

4. What are the advantages and disadvantages of proprietary software?

ANS:

The advantages include:

- 1) You can get exactly what you need in terms of features, reports, and so on.
- 2) Being involved in the development offers control over the results.

3) You can modify features that you might need to counteract an initiative by competitors or to meet new supplier or customer demands. A merger with or acquisition of another firm also requires software changes to meet new business needs.

The disadvantages include:

- 1) It can take a long time and significant resources to develop required features.
- 2) In-house system development staff may become hard pressed to provide the required level of ongoing support and maintenance because of pressure to move on to other new projects.
- 3) There is more risk concerning the features and performance of the software that has yet to be developed.

PTS: 1

REF: 90

5. What are the advantages and disadvantages of off-the-shelf software?

ANS:

The advantages include:

- 1) The initial cost is lower because the software firm can spread the development costs over many customers.
- 2) The software is likely to meet the basic business needs - you can analyze existing features and the performance of the package.
- 3) The package is likely to be of high quality because many customer firms have tested the software and helped identify its bugs.

The disadvantages include:

- 1) An organization might have to pay for features that are not required and never used.
- 2) The software might lack important features, thus requiring future modification or customization. This can be very expensive because users must adopt future releases of the software as well.
- 3) The software might not match current work processes and data standards.

PTS: 1

REF: 90