Chapter 1: Computers and Digital Basics

TRUE/FALSE

1. The digital revolution became a significant factor in the 1980s but ended in the 1990s when the "dot com" bubble burst.

   ANS: F PTS: 1 REF: 6

2. The first digital computer was developed for conducting the census.

   ANS: F PTS: 1 REF: 6

3. Facebook and Twitter are examples of social networking options.

   ANS: T PTS: 1 REF: 10

4. Privacy advocates fear that digital technologies are fundamentally changing our expectation of what is private and what is not.

   ANS: T PTS: 1 REF: 11

5. Prior to 1940, the word computer was defined as a person who performs calculations.

   ANS: T PTS: 1 REF: 14

6. An operating system is an example of application software.

   ANS: F PTS: 1 REF: 16

7. Because of increased versatility, a videogame console is now considered a personal computer.

   ANS: F PTS: 1 REF: 17

8. The purpose of a server is to serve computers on a network.

   ANS: T PTS: 1 REF: 18

9. In the binary number system, 2 is used to represent the value 2.

   ANS: F PTS: 1 REF: 23

10. The number 9 can be considered a character.

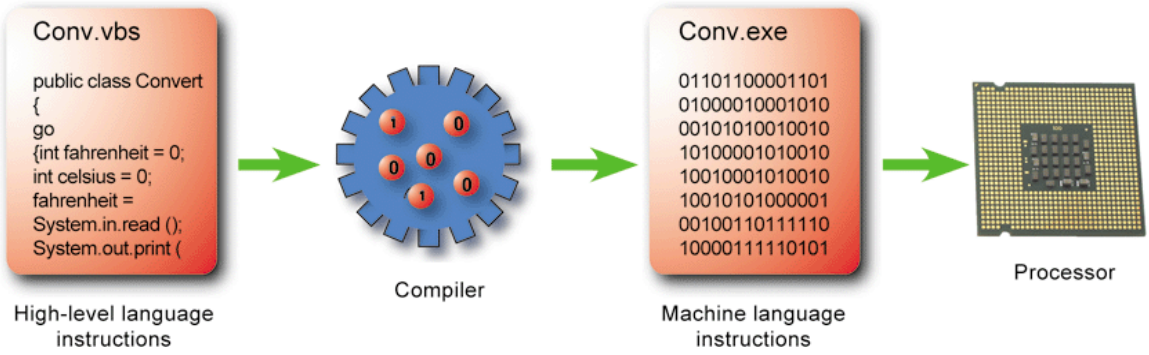
    ANS: T PTS: 1 REF: 24

11. Because most digital devices are electronic, bits take the form of electrical pulses.

    ANS: T PTS: 1 REF: 27

12. Semiconductor materials are substances with properties between those of a conductor and an insulator.

ANS: T PTS: 1 REF: 27



13. A compiler like the one shown in the accompanying figure converts all statements in a program to machine language in a single batch.

ANS: T PTS: 1 REF: 30

14. An interpreter converts and executes one statement at a time.

ANS: T PTS: 1 REF: 30

15. The op code in a machine language instruction specifies the data.

ANS: F PTS: 1 REF: 31

16. The operand is a command word for an operation.

ANS: F PTS: 1 REF: 31

17. All computers are case sensitive.

ANS: F PTS: 1 REF: 35

18. Trojans are computer programs that seem to perform one function while actually doing something else.

ANS: T PTS: 1 REF: 37

19. To ensure you can remember your password, it is a good idea to base it on information you can easily remember such as your birthday.

ANS: F PTS: 1 REF: 38

20. You should always use a different password for every account.

ANS: F PTS: 1 REF: 39

MODIFIED TRUE/FALSE

1. Digital technology has made it easy to produce copies of music with no loss of quality from the original. _____

ANS: T PTS: 1 REF: 12

2. Free source projects promote copying, free distribution, peer review, and user modifications. _____

   ANS: F, Open

   PTS: 1 REF: 12

3. An area where data can be left on a permanent basis is memory. _____

   ANS: F, storage

   PTS: 1 REF: 15

4. The set of instructions that tells a computer how to carry out processing tasks is a computer program. _____

   ANS: T PTS: 1 REF: 15

5. At one time, minicomputers were smaller, less expensive, and less powerful computers that were able, nevertheless, to support multiple users and run business software. _____

   ANS: T PTS: 1 REF: 16

6. A(n) supercomputer is a large and expensive computer capable of simultaneously processing data for hundreds or thousands of users. _____

   ANS: F
   mainframe
   mainframe computer

   PTS: 1 REF: 19

7. The term server can refer to a combination of hardware and software. _____

   ANS: T PTS: 1 REF: 18

8. A(n) microcomputer specializes in compute-intensive problems. _____

   ANS: F, supercomputer

   PTS: 1 REF: 19

9. A light switch is like a(n) analog device. _____

   ANS: F, digital

   PTS: 1 REF: 22

10. DIPs and PGAs are both shapes of integrated circuits. _____

    ANS: T PTS: 1 REF: 27

11. The results of statements that have been compiled are called object code.
_____

ANS: T PTS: 1 REF: 30

12. A set of machine language instructions for a program is called source code.
_____

ANS: F, machine

PTS: 1 REF: 30

13. The ALU uses registers to hold data that is being processed. _____

ANS: T PTS: 1 REF: 31

14. A(n) keylogger is a form of malicious code. _____

ANS: T PTS: 1 REF: 37

15. A(n) account manager stores user IDs with their corresponding passwords and automatically fills in login forms. _____

ANS: F, password

PTS: 1 REF: 40

MULTIPLE CHOICE

1. ____ is the process of converting text, numbers, sound, photos, and video into data that can be processed by digital devices.
   a. Digitization
   b. Analog conversion
   c. Scanning
   d. Rasterization

   ANS: A PTS: 1 REF: 5

2. The first digital computers were built during World War II for ____.
   a. census taking
   b. code breaking
   c. communication
   d. troop placement

   ANS: B PTS: 1 REF: 6

3. ____ software refers to any software that is installed on a computer's hard disk.
   a. Local
   b. Proprietary
   c. Cloud
   d. Digital

   ANS: A PTS: 1 REF: 7

4. Initially sales were slow for the personal computer because of ____.
   a. price
   b. size
   c. lack of software
   d. lack of availability

   ANS: C PTS: 1 REF: 7

5. In 1982, the percentage of households that had a computer was closest to ____ percent.
   a. 10
   b. 30
   c. 50
   d. 70

   ANS: A PTS: 1 REF: 7

6. A global computer network originally developed as a military project is the ____.
   a. World Wide Web
   b. Internet
   c. Wide-area network
   d. Local-area network

   ANS: B PTS: 1 REF: 8

7. When restrictions on commercial use of the ____ were lifted in 1995, companies such as AOL and CompuServe became popular services.
   a. World Wide Web
   b. Internet
   c. Wide-area network
   d. Local-area network

   ANS: B PTS: 1 REF: 8

8. The ____ phase of the digital revolution materialized in the 1990s when the Internet was opened to public use.
   a. first
   b. second
   c. third
   d. fourth

   ANS: C PTS: 1 REF: 8

9. According to the text, a key aspect of ____ is that it adds content and substance to ____.
   a. the Web, the Internet
   b. convergence, the cloud
   c. the Internet, the Web
   d. the cloud, local applications

   ANS: A PTS: 1 REF: 8

10. During the period from ____, computing was characterized by the Web, e-mail, multiplayer games, music downloads, and enormous software applications.
    a. 1982-1985
    b. 1985-1990
    c. 1990-1995
    d. 1995-2010

    ANS: D PTS: 1 REF: 8

11. The ____ is a collection of linked documents, graphics, and sounds.
    a. network
    b. Web
    c. cyberspace
    d. Internet

    ANS: B PTS: 1 REF: 8

12. A group of computers linked together to share data and resources is a(n) ____.
    a. network
    b. Web
    c. cyberspace
    d. Internet

    ANS: A PTS: 1 REF: 8

13. ____ computing provides access to information, applications, communications, and storage over the Internet.
    a. Distance
    b. Disparate
    c. Cloud
    d. Local

    ANS: C PTS: 1 REF: 9

14. Technology ____ is a process by which several different technologies with distinct functionality evolve to form a single product.
    a. evolution
    b. rotation
    c. convergence
    d. diversification

    ANS: C PTS: 1 REF: 9

15. ____ media are cloud-based applications designed for social interaction and consumer-generated content.
    a. Sharing
    b. Wiki
    c. Blogging
    d. Social

    ANS: D PTS: 1 REF: 10

16. Myspace lost steam in _____, but Facebook and Twitter marched ahead by attracting millions of users.
    a. 2004
    b. 2006
    c. 2008
    d. 2010

    ANS: C PTS: 1 REF: 10

17. ____ tools cloak a person's identity online.
    a. Anonymizer
    b. Free ID
    c. ID free
    d. Cloaking

    ANS: A PTS: 1 REF: 11

18. The modern definition and use of the term computer emerged in the ____.
    a. 1930s
    b. 1940s
    c. 1950s
    d. 1960s

    ANS: B PTS: 1 REF: 14

19. In a computer, most processing takes place in ____.
    a. memory
    b. RAM
    c. the CPU
    d. the motherboard

    ANS: C PTS: 1 REF: 15

20. An electronic component that can be programmed to perform tasks is a ____.
    a. CPU
    b. microprocessor
    c. transistor
    d. none of the above

    ANS: B PTS: 1 REF: 15

21. A named collection of data that exists on a storage medium is known as (a) ____.
    a. memory
    b. file
    c. file name
    d. none of the above

    ANS: B PTS: 1 REF: 15

22. An area of a computer that temporarily holds data waiting to be processed is ____.
    a. the CPU
    b. memory
    c. storage
    d. a file

    ANS: B PTS: 1 REF: 15

23. A set of computer programs that helps a person carry out a task is ____.
    a. an operating system
    b. system software
    c. application software
    d. Windows

    ANS: C PTS: 1 REF: 16

24. A set of computer programs that helps a computer monitor itself and function more efficiently is ____.
    a. a software suite
    b. system software
    c. application software
    d. processing software

    ANS: B PTS: 1 REF: 16

25. The master controller for all activities that take place within a computer is ____.
    a. application software
    b. system software
    c. the operating system
    d. the CPU

    ANS: C PTS: 1 REF: 16

26. A(n) ____ is a microprocessor-based computing device designed to meet the computing needs of an individual.
    a. personal computer
    b. mainframe
    c. ALU
    d. server

    ANS: A PTS: 1 REF: 17

27. An ordinary personal computer that is connected to a network is a ____.
    a. mainframe
    b. workstation
    c. server
    d. console

    ANS: B PTS: 1 REF: 18

28. A powerful desktop computer used for high-performance tasks is a ____.
    a. mainframe
    b. workstation
    c. server
    d. console

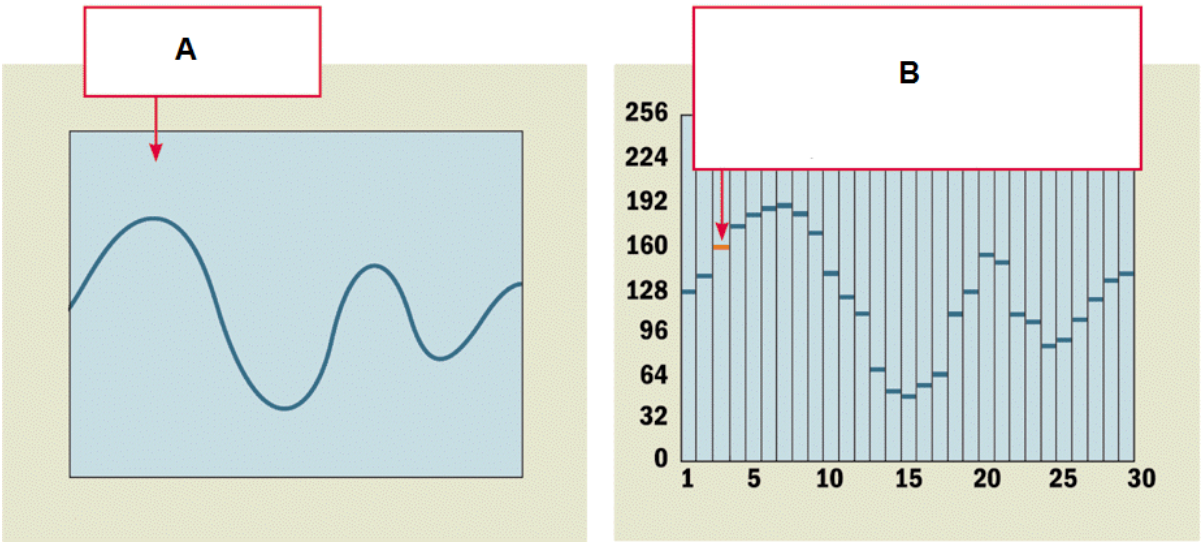
    ANS: B PTS: 1 REF: 18

29. A compute-intensive problem runs on a ____.
    a. server
    b. miniframe
    c. supercomputer
    d. super PC

    ANS: C PTS: 1 REF: 19

30. Data becomes ____ when it is presented in a format that people can understand and use.
    a. information
    b. processed
    c. graphs
    d. presentation

    ANS: A PTS: 1 REF: 22



31. The type of data where text, numbers, graphics, sound, and video have been converted into discrete digits as represented in the accompanying figure is ____.
    a. information
    b. analog
    c. digital
    d. none of the above

    ANS: C PTS: 1 REF: 22, 25

32. The type of data that is represented using an infinite scale of values as represented in the accompanying figure is ____.
    a. information
    b. analog
    c. digital
    d. none of the above

    ANS: B PTS: 1 REF: 22, 25

33. The binary number 10 represents ____ in the decimal number system.
    a. 1
    b. 2
    c. 10
    d. 100

    ANS: B PTS: 1 REF: 23

34. The type of code that uses only seven bits for each character is ____.
    a. ASCII
    b. Extended ASCII
    c. EBCDIC
    d. all of the above

    ANS: A PTS: 1 REF: 24

35. The type of code that uses eight bits for each character is ____.
    a. ASCII
    b. Extended ASCII
    c. EBCDIC
    d. all of the above

    ANS: B PTS: 1 REF: 24

36. Digital devices can use ____ as a code to represent character data.
    a. ASCII
    b. Extended ASCII
    c. EBCDIC
    d. all of the above

    ANS: D PTS: 1 REF: 24

37. You might represent ____ using character codes.

a. color dots
b. bank balances
c. Social Security numbers
d. none of the above

ANS: C PTS: 1 REF: 25

38. Data transmission speeds are typically expressed as ____.
a. bits
b. bytes
c. hertz
d. none of the above

ANS: A PTS: 1 REF: 26

39. Storage is typically expressed as ____.
a. bits
b. bytes
c. hertz
d. none of the above

ANS: B PTS: 1 REF: 26

40. 1,024 bytes is a ____.
a. kilobyte
b. megabyte
c. gigabyte
d. terabyte

ANS: A PTS: 1 REF: 26

41. 1,048,576 bytes is a ____.
a. kilobyte
b. megabyte
c. gigabyte
d. terabyte

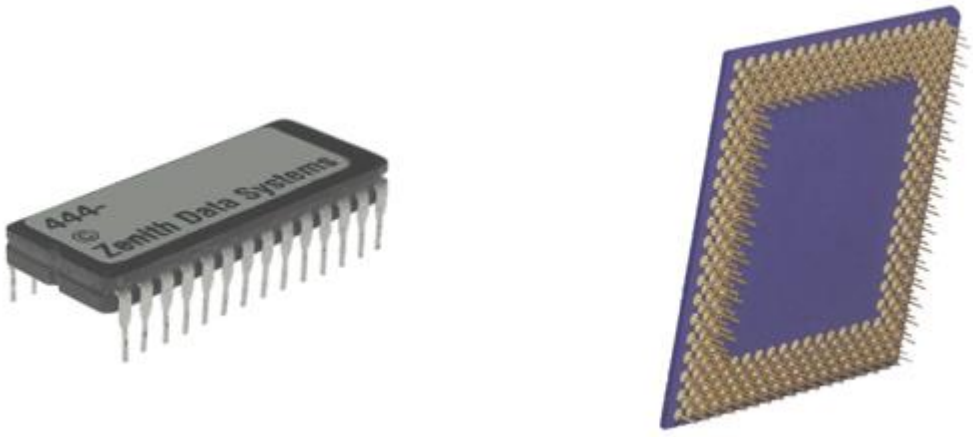
ANS: B PTS: 1 REF: 26

42. 1,073,741,824 bytes is a ____.
a. kilobyte
b. megabyte
c. gigabyte
d. terabyte

ANS: C PTS: 1 REF: 26

43. A super-thin slice of semiconducting material packed with microscopic circuit elements is a(n) ____.
a. integrated circuit
b. computer chip
c. microchip
d. all of the above

ANS: D PTS: 1 REF: 27



44. The accompanying figure represents two types of chip carriers. The one on the left is a ____.

a. PGA
b. DIP
c. PID
d. GAP

ANS: B PTS: 1 REF: 27

45. The accompanying figure represents two types of chip carriers. The one on the right is a ____.
a. PGA
b. DIP
c. PID
d. GAP

ANS: A PTS: 1 REF: 27

46. The ____ houses all essential chips and provides connecting circuitry between them.
a. system board
b. housing structure
c. circuit breaker
d. chip set

ANS: A PTS: 1 REF: 28

47. C, BASIC, COBOL, and Java are examples of ____ programming languages.
a. low-level
b. computer
c. system
d. high-level

ANS: D PTS: 1 REF: 29

48. The human-readable version of a program is called ____.
a. source code
b. program code
c. human code
d. system code

ANS: A PTS: 1 REF: 29

49. A(n) ____ converts all the statements in a program in a single batch; the resulting collection of instructions is placed in a new file.
a. compiler
b. interpreter
c. converter
d. instruction

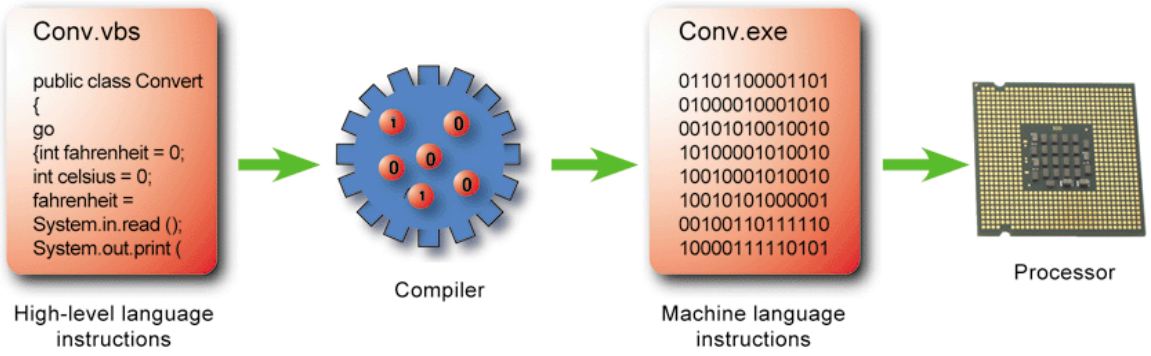
ANS: A PTS: 1 REF: 30

50. A(n) ____ converts and executes one statement at a time.
a. compiler
b. interpreter
c. converter
d. instruction

ANS: B PTS: 1 REF: 30

51. A collection of preprogrammed activities such as addition, subtraction, counting, and comparison is called a(n) ____.
a. compiler code
b. interpreter code
c. machine code
d. instruction set

ANS: D PTS: 1 REF: 30



52. ____, as shown in the accompanying figure, can be directly executed by the processors's circuitry.
a. Machine sets
b. Machine language
c. Programming language
d. none of the above

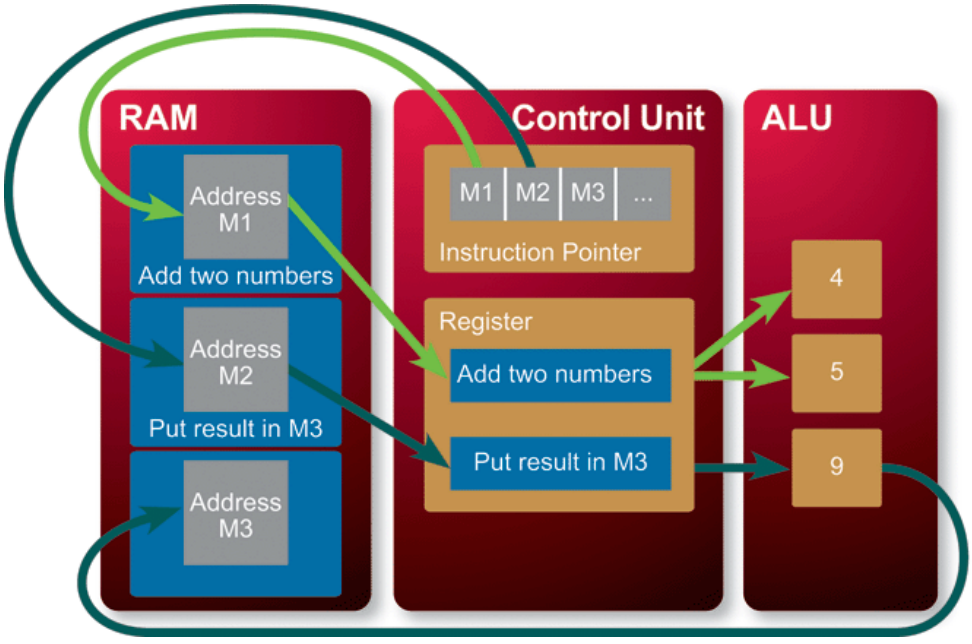
ANS: B PTS: 1 REF: 30

53. The ____ in machine language is a command word for an operation such as add, compare, or jump.
a. op code
b. operand
c. ALU
d. instruction code

ANS: A PTS: 1 REF: 31

54. The ____ from an instruction specifies the data.
a. op code
b. operand
c. ALU
d. instruction code

ANS: B PTS: 1 REF: 31

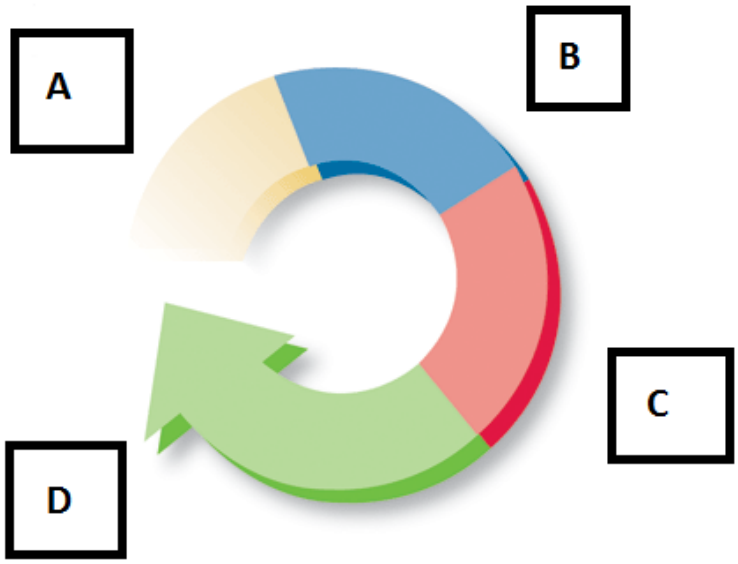


55. The ____ is the part of the microprocessor that performs arithmetic operations, as shown in the accompanying figure.
a. control unit
b. RAM
c. ALU
d. ADD

ANS: C PTS: 1 REF: 31 - 32

56. As shown in the accompanying figure, the ____ fetches each instruction.
a. RAM
b. instruction pointer
c. ALU
d. control unit

ANS: D PTS: 1 REF: 32



57. The accompanying figure represents the instruction cycle. The first step is Box A and represents the ____.
a. fetch instruction
b. interpret instruction
c. execute instruction
d. increment pointer

ANS: A PTS: 1 REF: 32

58. The accompanying figure represents the instruction cycle. The second step is Box B and represents the ____.
a. fetch instruction
b. interpret instruction
c. execute instruction
d. increment pointer

ANS: B PTS: 1 REF: 32

59. The accompanying figure represents the instruction cycle. The third step is Box C and represents the ____.
a. fetch instruction
b. interpret instruction
c. execute instruction
d. increment pointer

ANS: C PTS: 1 REF: 32

60. The accompanying figure represents the instruction cycle. The fourth step is Box D and represents the ____.
a. fetch instruction
b. interpret instruction
c. execute instruction
d. increment pointer

ANS: D PTS: 1 REF: 32

61. In terms of an authentication protocol, the phrase ‘something a person knows’ refers to ____.
a. a password
c. biometrics

b. an ID card
d. none of the above

ANS: A PTS: 1 REF: 34

62. A ____ is a series of characters that becomes a person's unique identifier.
a. PIN code
c. user ID
b. password
d. all of the above

ANS: C PTS: 1 REF: 34

63. In terms of an authentication protocol, the phrase 'something a person possesses' could refer to ____.
a. a password
c. biometrics
b. an ID card
d. none of the above

ANS: B PTS: 1 REF: 34

64. In terms of an authentication protocol, the phrase 'something a person is' refers to a(n) ____.
a. password
c. biometric device
b. ID card
d. none of the above

ANS: C PTS: 1 REF: 34

65. A problem a hacker can cause after breaking into your computer might be ____.
a. applying for credit in your name
c. applying for a mortgage using your data
b. sending embarrassing e-mails
d. all of the above

ANS: D PTS: 1 REF: 36

66. A term which can refer to a person who manipulates computers with malicious intent is ____.
a. black hat
c. hacker
b. cracker
d. all of the above

ANS: D PTS: 1 REF: 36

67. A ____ attack uses password-cracking software.
a. brute force
c. phishing
b. sniffing
d. cracker

ANS: A PTS: 1 REF: 37

68. ____ intercepts information sent over computer networks.
a. Brute force
c. Phishing
b. Sniffing
d. Cracking

ANS: B PTS: 1 REF: 37

69. A hacker posing as a legitimate representative of an official organization such as your bank is an example of ____.
a. brute force
c. phishing
b. sniffing
d. cracking

ANS: C PTS: 1 REF: 37

70. Password management functions include all of the following EXCEPT ____.
a. generating passwords
c. providing password strength
b. tracking passwords
d. recording keystrokes

ANS: D PTS: 1 REF: 40 - 41

Case-Based Critical Thinking Questions
Case 1-1

Mike and Andre are discussing how quickly technology changes. They are discussing how it seems devices are merging to create new products especially in the technology field. They understand this is a process called convergence.

71. An example of an old form of convergence is a ____.
    a. clock radio
    b. cell phone
    c. television
    d. microwave oven

    ANS: A PTS: 1 REF: 9 TOP: Critical Thinking

72. A great example of convergence in modern technology is ____.
    a. clock radio
    b. cell phones
    c. television
    d. microwave oven

    ANS: B PTS: 1 REF: 9 TOP: Critical Thinking

73. Mike and Andre consider themselves average consumers when it comes to digital devices. In light of this, each of them could be expected to own more than ____ digital devices.
    a. 7
    b. 12
    c. 13
    d. 24

    ANS: D PTS: 1 REF: 3 TOP: Critical Thinking

Case-Based Critical Thinking Questions
Case 1-2

Karen is studying about microcontrollers in her engineering class, and wants to learn more about how they are used.

74. Karen learns that microcontrollers are sometimes referred to by another name. What is another term for a microcontroller?
    a. computer-on-a-chip
    b. smart phone
    c. handheld computer
    d. CPU

    ANS: A PTS: 1 REF: 20 TOP: Critical Thinking

75. Karen is learning that, when combined with wireless networks, devices with microcontrollers can relay information to which of the following?
    a. Web sites
    b. cell phones
    c. data collection devices
    d. all of the above

    ANS: D PTS: 1 REF: 21 TOP: Critical Thinking

76. Which of the following is NOT a true statement that Karen learns about microcontrollers?
    a. They are an almost invisible technology.
    b. They tend to be environmentally unfriendly.
    c. They are a technology that requires little adaptation.
    d. They are a technology that doesn't require much learning on the part of the people who interact with their devices.

    ANS: B PTS: 1 REF: 21 TOP: Critical Thinking

Case-Based Critical Thinking Questions
Case 1-3

Jim has just purchased a new computer and it has made him think about how it works. He is particularly interested in how information is processed and stored in his computer. He has come to you for help.

77. Jim wants to know why a compiler converts all statements in a program at one time and places them into an object code. You tell him it is so that ____.
    a. the code is ready to execute
    b. you can prevent the introduction of new errors
    c. you can put it on a chip
    d. none of the above

    ANS: A PTS: 1 REF: 30 TOP: Critical Thinking

78. Jim knows that a collection of preprogrammed activities is an instruction set. He wants to know what an instruction set is designed to do. You tell him it is designed to ____.
    a. carry out a particular task
    b. allow programmers to use them in creative ways for multiple tasks
    c. limit the number of tasks the computer can perform
    d. allow the program to run on multiple machines

    ANS: B PTS: 1 REF: 30 TOP: Critical Thinking

79. Jim wants to know what machine language instructions look like to the machine. You tell him they appear as ____.
    a. an op code and operand
    b. a series of 0s and 1s
    c. basic instructions, such as add
    d. all of the above

    ANS: B PTS: 1 REF: 30 TOP: Critical Thinking

80. When adding two numbers, Jim knows that each number is going into its own register and the control unit provides the instructions such as add. He wants to know where the result of the add goes. You tell him it goes to ____.
    a. the ALU
    b. another register
    c. the accumulator
    d. the printer

    ANS: C PTS: 1 REF: 32 TOP: Critical Thinking

COMPLETION

1. An ongoing process of social, political, and economic change brought about by digital technology is the digital _____.

   ANS: revolution

   PTS: 1 REF: 4

2. As the third phase of the digital revolution unfolded, _____ technology became consumer-friendly, allowing homeowners to connect multiple computers, exchange files, and, most importantly, share an Internet connection.

ANS: network

PTS: 1 REF: 8

3. The "_____" represents Internet-based services, such as applications and social media, that are available from computers and handheld digital devices.

ANS: cloud

PTS: 1 REF: 9

4. The expectation that a person's information will not be collected or divulged without permission is _____.

ANS: confidentiality

PTS: 1 REF: 11

5. The ownership of certain types of information, ideas, or representations is intellectual _____.

ANS: property

PTS: 1 REF: 12

6. Worldwide economic interdependence of countries that occurs as cross-border commerce increases and as money flows more freely among countries is _____.

ANS: globalization

PTS: 1 REF: 12

7. A term that refers to the gap between people who have access to technology and those who do not is the digital _____.

ANS: divide

PTS: 1 REF: 13

8. Symbols that represent facts, objects, and ideas are _____.

ANS: data

PTS: 1 REF: 15

9. The manipulation of data is called _____.

ANS: processing

PTS: 1 REF: 15

10. The concept that a series of instructions for a computing task can be loaded into memory is called a stored _____.

ANS: program

PTS: 1 REF: 16

11. Any software or digital device that requests data from a server is referred to as a(n) _____.

ANS: client

PTS: 1 REF: 18

12. A(n) _____ is a type of computer that is considered one of the fastest in the world (at the time of construction).

ANS: supercomputer

PTS: 1 REF: 19

13. A special-purpose microprocessor that is built into the machine it controls is a(n) _____.

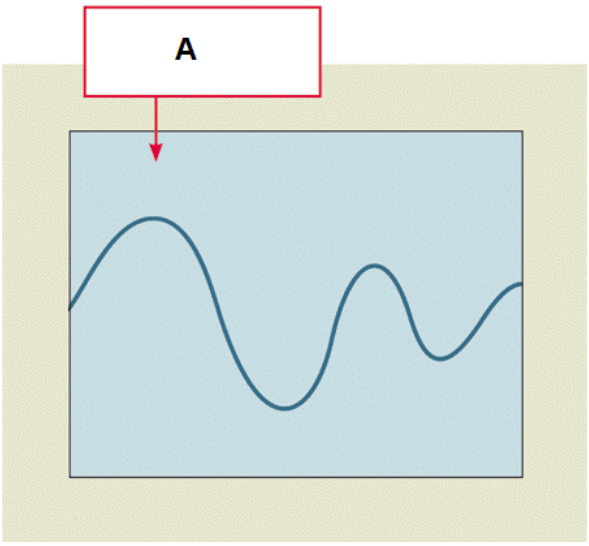
ANS:
microcontroller
computer-on-a-chip
embedded computer

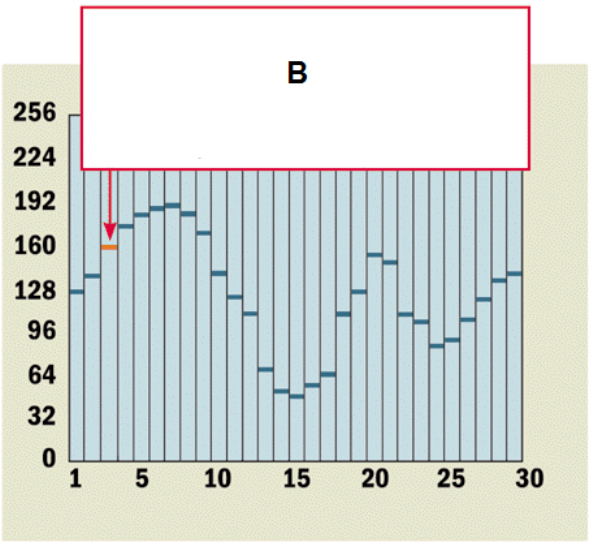
PTS: 1 REF: 20

14. The term that refers to the form in which data is stored, processed, and transmitted is data _____.

ANS: representation

PTS: 1 REF: 22





15. In the accompanying figure, box A indicates a type of wave, such as a sound wave, known as a(n) _____ wave.

    ANS: analog

    PTS: 1 REF: 25

16. In the accompanying figure, the sound wave indicated by B has been sliced into samples and so has been _____.

    ANS: digitized

    PTS: 1 REF: 25

17. Eight bits is a(n) _____.

    ANS: byte

    PTS: 1 REF: 26

18. A machine language instruction has two parts, the op code and the _____.

    ANS: operand

    PTS: 1 REF: 31

19. Identifying a person by personal attributes such as fingerprints or retinal patterns is called _____.

    ANS: biometrics

    PTS: 1 REF: 34

20. If you use a simple-to-remember password, hackers may guess it by stepping through a password dictionary, a process called a dictionary _____.

    ANS: attack

    PTS: 1 REF: 36

MATCHING

Identify the letter of the choice that best matches the phrase or definition.

a. Unicode
b. identity theft
c. ALU
d. download
e. source code
f. control unit
g. authentication protocol
h. case sensitive
i. memory
j. microchip
k. storage
l. password manager

1. The area where data can be left on a permanent basis when it is not immediately needed for processing
2. The practice of copying a file from a remote computer to a local computer
3. Any method that confirms a person's identity

4. An area of the computer that temporarily holds data waiting to be processed, stored, or output
5. Provides codes for 65,000 characters
6. Another name for integrated circuit
7. Part of the microprocessor that performs arithmetic operations
8. Fetches each instruction
9. Differentiates between uppercase and lowercase words
10. Unauthorized use and access to personal data
11. Stores user IDs with their corresponding password
12. Human-readable version of a program

1. ANS: K PTS: 1 REF: 15
2. ANS: D PTS: 1 REF: 18
3. ANS: G PTS: 1 REF: 34
4. ANS: I PTS: 1 REF: 15
5. ANS: A PTS: 1 REF: 25
6. ANS: J PTS: 1 REF: 27
7. ANS: C PTS: 1 REF: 31
8. ANS: F PTS: 1 REF: 31
9. ANS: H PTS: 1 REF: 35
10. ANS: B PTS: 1 REF: 36
11. ANS: L PTS: 1 REF: 40
12. ANS: E PTS: 1 REF: 29

ESSAY

1. What role does digital technology play in freedom of speech and democracy?

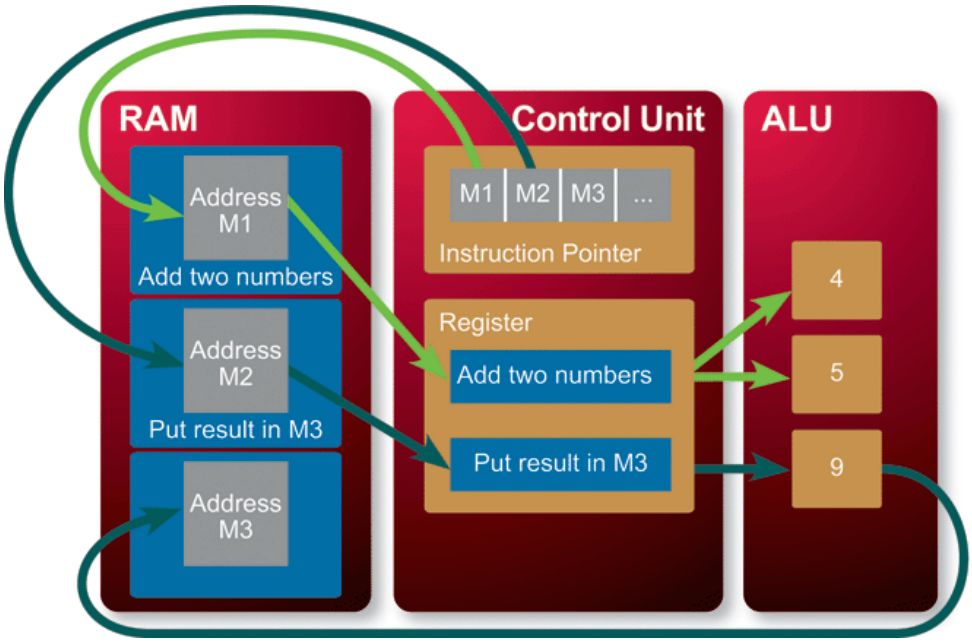
   ANS:
   Freedom of speech is not an absolute. Most societies prohibit or repress some types of expression, such as hate speech, libel, pornography, and flag burning. The types of expressions that are allowed or prohibited in a particular country are, in many respects, a reflection of its culture. Digital technologies and communications networks make it easy to cross cultural and geographic boundaries. News, television shows, music, and art from all over the globe are accessible on the Internet. The Internet has the potential to expand freedom of speech by offering every person on the globe a forum for personal expression using personal Web sites, blogs, chat groups, social media, and collaborative wikis. Anonymous Internet sites make it possible to exercise freedom of speech in situations where reprisals might repress it.

   PTS: 1 REF: 10 - 11 TOP: Critical Thinking

2. Are handheld devices computers?

   ANS:
   Handheld digital devices include familiar gadgets such as iPhones, iPads, iPods, Garmin GPSs, Droids, and Kindles. These devices incorporate many computer characteristics. They accept input, produce output, process data, and include storage capabilities. Handheld devices vary in their programmability and their versatility. They can be divided into two broad categories: those that allow users to install software applications (apps) and those that do not. A handheld device that allows you to install applications can be classified as a handheld computer to distinguish it from the dedicated handheld devices that do not offer apps.

PTS: 1 REF: 17 TOP: Critical Thinking



3. Using the diagram in the accompanying figure, discuss how the control unit processes an instruction.

ANS:
In this figure, the control unit's instruction pointer indicates M1, a location in memory. The control unit fetches the "Add two numbers" instruction from M1. This instruction is then sent to the ALU. The instruction pointer then changes to M2. The processor fetches the instruction located in M2, moves it to a register, and executes it.

PTS: 1 REF: 32 TOP: Critical Thinking