TEST BANK

Business Data Communications

Introductory Concepts and Techniques

FOURTH EDITION

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Cashman
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INTRODUCTORY

Business Data Communications, Fourth Edition

CHAPTER 2

FUNDAMENTALS OF DATA COMMUNICATIONS

TEST BANK

■   Test Bank Answers are on page 2-11.

Multiple Choice

1. Data transmitted over a network is sent by means of a(n) _____.

    a.   e-mail

    b.   baud

    c.   circuit

    d.   signal

2. A binary digit (bit) is _____.

    a.   1 or 0

    b.   numbers 1 through 10

    c.   X-on or X-off

    d.   both a and b

3. A string of bits, which represents a character inside a computer's memory, is known as a(n) _____.

    a.   byte

    b.   bit

    c.   chip

    d.   element

4. If a signal is made up of 2 bits and is transmitted at 28,800 bits per second (bps), the baud rate is _____ bps.

     a.   18,800

     b.   16,500

     c.   14,400

     d.   4,800

5.   Frequency is measured in cycles per second, known as _____.

     a.   volts

     b.   amps

     c.   tribits

     d.   hertz

6.   A computer that operates at 66 MHz, processes _____ cycles per second.

     a.   66,000

     b.   66,000,000

     c.   66,000,000,000

     d.   660

7.   The telephone system transmits voice signals using a bandwidth of up to _____, while the human ear can hear signals up to _____.

     a.   10 kHz, 2 kHz

     b.   30 kHz, 20 kHz

     c.   30 kHz, 2 kHz

     d.   1 kHz, 20 kHz

8.   Multiple transmission currents transmitted on the same line are separated by _____.

     a.   channels

     b.   hertz

     c.   bytes

     d.   guardbands

9.   Text, integers, and Morse code are examples of _____ data.

     a.   analog

    b.   continuous

    c.   frequency

    d.   digital

10.   A clock on which the hands sweep around the face is an example of _____ data.

    a.   discrete

    b.   analog

    c.   digital

    d.   graphical

11.   A process control computer processes _____ data.

    a.   digital

    b.   generic

    c.   analog

    d.   graphical

12.   A modem is used to convert signals from _____.

    a.   analog to digital

    b.   digital to analog

    c.   digital to digital

    d.   both a and b

13.   Modems always are used _____.

    a.   alone

    b.   in pairs

    c.   on digital networks

    d.   in threes

14.   A device designed to be used for a short-distance connection between two devices is a(n) _____.

    a.   short modem

    b.   concentrator

    c.   null modem

    d.   ISDN

15. A device that can connect a personal computer to the Internet, as well as provide access to cable television, is a(n) _____.

    a.   acoustic coupler

    b.   cable modem

    c.   fax accelerator

    d.   fax modem

16. A data code that uses 16 bits is _____.

    a.   Morse

    b.   Unicode

    c.   ASCII

    d.   EBCDIC

17. The maximum number of characters that can be represented in Extended Binary-Coded Decimal Interchange Code (EBCDIC) data code is _____.

    a.   256

    b.   128

    c.   64

    d.   32

18. The part of a telephone used to change the human voice into an analog electrical signal is a(n) _____.

    a.   modem

    b.   hertz

    c.   ampere

    d.   converter

19. Touch-Tone telephones use a technique called _____ signaling to provide a signal.

    a.   single tone multifrequency (STMF)

    b.   dual tone single frequency (DTSF)

c.   single tone single frequency (STSF)

d.   dual tone multifrequency (DTMF)

20.   The section of telephone line that connects the telephone in a private home to an end office is called a _____.

a.   local office

b.   final loop

c.   local loop

d.   central office

21.   The telephone line that connects two telephone company offices is called a _____.

a.   local loop

b.   trunk

c.   branch

d.   long-distance loop

22.   Telephone calls can be routed along different lines depending on how busy the networks become. The telephone company office that provides alternate routes for calls when trunks are busy is the _____ office.

a.   tandem

b.   end

c.   central

d.   exchange

23.   Because many more telephone numbers are needed in the modern business world, additional _____ have been developed.

a.   exchanges

b.   area codes

c.   end offices

d.   area maps

24.   International telephone calls require a(n) _____ as well as the area code and telephone number.

    a.   900 service

    b.   exchange

    c.   WATS number

    d.   country code

25. A telephone service that provides a way to access long distance lines bypassing a regular long-distance carrier is called _____.

    a.   Alternative Long Distance service

    b.   800 service

    c.   Dial Around service

    d.   900 service

True/False

T F 1. Computer data is transmitted in the same way that a person's voice is sent over a telephone line.

T F 2. A bit is the same thing as a character.

T F 3. Characters always are represented by a sequence of five bits.

T F 4. A character is formed by combining a string of bits into a byte.

T F 5. The bit rate refers to the number of bits used to process data in computer memory.

T F 6. Baud rate and bit rate always mean the same thing.

T F 7. Dibits and tribits are used to enlarge the size of transmission files.

T F 8. The measure of frequency that refers to one cycle per second is known as hertz.

T F 9. Kilohertz, megahertz, and gigahertz refer to frequencies.

T F 10. Audio frequencies exist in the highest range of frequencies.

T F 11. FM radio is in the range of frequencies referred to as Very High Frequency (30-300 MHz).

T F 12. A range of frequencies spanning 200 to 4,000 Hz has a bandwidth of 3,800 Hz.

T F 13. Guardbands are used to protect data from computer viruses.

T F   14.   A narrow bandwidth allows the transmission of more data than a wide bandwidth.

T F   15.   The telephone system has an unlimited bandwidth.

T F   16.   Satellites have a wider bandwidth than the local telephone system.

T F   17.   Voice and video are examples of digital data.

T F   18.   Analog data is continuous data.

T F   19.   Digital computers process analog data with no conversion.

T F   20.   In order to transmit digital data over the telephone system, a modem is used to convert the data to an analog signal.

T F   21.   An internal modem is a printed circuit board (PCB) that is inserted directly into the computer.

T F   22.   The maximum speed at which a modem can transmit is 4,800 bps.

T F   23.   Modems have been designed to operate at a range of transmission speeds.

T F   24.   Data compression is used to increase the amount of data transmitted in a given period of time.

T F   25.   Modems never are used in pairs.

T F   26.   An Internet service provider (ISP) has a permanent connection to the Internet.

T F   27.   A cable modem commonly is used to connect computers within buildings.

T F   28.   A modem eliminator is used when communications between two devices is required over a short distance.

T F   29.   ASCII data code is used in most personal computers.

T F   30.   No special characters are allowed when using ASCII code.

T F   31.   EBCDIC (Extended Binary-Coded Decimal Interchange Code) is an 8-bit code.

T F   32.   The first 128 characters in UNICODE are identical to ASCII.

T F   33.   The transmitter is located in the part of the telephone handset used for hearing.

T F   34.   The diaphragm in a telephone is connected to a chamber filled with carbon modules that compress when the diaphragm vibrates.

T F   35.   A telephone number is really a code that tells the network how to connect the call.

T F   36.   Touch-Tone telephones actually generate two tones each time a button is

depressed.

T   F   37.   An end office is where a telephone operator works.

T   F   38.   A central office is the same thing as an exchange office.

T   F   39.   Homes are connected to the end office by means of a local area network.

T   F   40.   A digital long distance line is known as a Z-carrier circuit.

T   F   41.   Branches are used to connect end offices.

T   F   42.   The telephone system uses dedicated lines so that calls never are switched to alternate lines.

T   F   43.   Long-distance calls require the caller to enter an area code and then are switched through toll offices.

T   F   44.   Voice-grade circuits are the highest quality telephone lines available.

T   F   45.   Multiplexing is used to combine several signals on a single medium.

T   F   46.   A leased telephone circuit is a high-quality line available 24 hours a day.

T   F   47.   All area codes have a 1 as the middle digit.

T   F   48.   The first three digits of a telephone number after the area code are known as the exchange code.

T   F   49.   Another name for the use of telephone numbers with an 800 area code is Wide Area Telephone Services (WATS).

T   F   50.   A 900 area code is used to access dial around services.

Completion

1.   A(n) _____ is the smallest unit of information used in computers.

2.   A byte is used to create _____ inside the computer's memory.

3.   The number of times a signal changes per second is the _____.

4.   A battery produces _____ current.

5.   In order to keep the baud rate low, very large files often are transmitted using _____ and _____.

6.   The number of times per second that a current passes through a complete cycle is known as _____.

7.   In data communications, 6 billion cycles per second is stated as _____.

8.   A communications line can transmit in a frequency range of 500 Hz to 5,000 Hz. The difference between the two frequencies (4,500 Hz) is known as the _____.

9.   When multiple signals are transmitted on the same communications line, _____ are used to separate the signals.

10. Computers can process information such as voice or video by converting it to _____ data.

11. A clock on which the hands sweep around the face is an example of a(n) _____ device.

12. Computers that process continuous data without converting it to digital data are known as _____ computers.

13. A device located between the computer and the telephone line and that provides digital to analog and analog to digital conversion is a(n) _____.

14. Modems either can be installed inside the computer on a card (a(n) _____ modem) or outside the computer (a(n) _____ modem).

15. _____ is used to remove repetitive bits and replace them with a minimized code to transmit more data in a given time period.

16. A(n) _____ is a computerized service provided by either an individual or a company on which users may leave messages or retrieve messages left by other users.

17. Two devices that can be used for transmitting data between computers over a short distance in place of a modem are a(n) _____ (or null modem) and a(n) _____.

18. Extended ASCII uses 8 bits and can be used to represent _____ characters.

19. A telephone has two converters; one is the _____ and one is the _____.

20. The compression of carbon granules that converts the human voice into an electrical signal takes place in the _____.

21. A telephone number acts as a(n) _____ allowing a call to be routed to the correct telephone.

22. A telephone company that provides the dial tone to the subscriber is known as the

    _____.

23. A T-1 line transmits at _____ bps.

24. A connection made within local end offices is known as a(n) _____.

25. A call placed between two end offices is a(n) _____ call, and one placed through a single end office is a(n) _____ call.

26. End offices are connected by telephone lines called trunks, and the trunks are connected to other trunks at _____ offices.

27. Long-distance telephone lines are called _____ and these lines connect

    _____.

28. A call made to an area serviced by a toll trunk must include a(n) _____ as part of the phone number.

29. The telephone lines are described by the quality of service provided. The lowest-level of service is available on _____ circuits.

30. A class of telephone line, which is available to a company 24 hours a day, 7 days a week and which bypasses all switching equipment, is a(n) _____ line.

31. When long-distance trunks are busy, a(n) _____ is heard on the line, which is 120 tones per minute.

32. Every area code, as originally designed, had a(n) _____ or _____ as the middle digit.

33. In 1989, the area code for _____ was changed to include 312 and 708.

34. In order to add additional telephone numbers within an area code, new _____ are used.

35. _____ Services bypass the customer's regular long distance carrier.

TEST BANK ANSWERS FOR CHAPTER 2
FUNDAMENTALS OF DATA COMMUNICATIONS

Multiple Choice

1. d [2.2]
2. a [2.2]
3. a [2.2]
4. c [2.4]
5. d [2.4]
6. b [2.4]
7. b [2.5]
8. d [2.5]
9. d [2.7]
10. b [2.7]
11. c [2.7]
12. d [2.8]
13. b [2.10]
14. c [2.11]
15. b [2.11]
16. b [2.13]
17. a [2.13]
18. d [2.15]
19. d [2.17]
20. c [2.17]
21. b [2.20]
22. a [2.20]
23. b [2.23]
24. d [2.24]
25. c [2.25]

True/False

1. F [2.2]
2. F [2.2]
3. F [2.2]
4. T [2.2]
5. F [2.2]
6. F [2.3]
7. F [2.4]
8. T [2.4]
9. T [2.4]
10. F [2.4]
11. T [2.5]
12. T [2.5]

13. F [2.5]
14. F [2.5]
15. F [2.6]
16. T [2.6]
17. F [2.7]
18. T [2.7]
19. F [2.7]
20. T [2.8]
21. T [2.8]
22. F [2.9]
23. T [2.9]
24. T [2.9]
25. F [2.10]
26. T [2.10]
27. F [2.11]
28. T [2.11]
29. T [2.13]
30. F [2.13]
31. T [2.13]
32. T [2.15]
33. F [2.15]
34. T [2.15]
35. T [2.17]
36. T [2.17]
37. F [2.17]
38. T [2.17]
39. F [2.17]
40. F [2.18]
41. F [2.20]
42. F [2.20]
43. T [2.20]
44. F [2.20]
45. T [2.20]
46. T [2.22]
47. F [2.23]
48. T [2.23]
49. T [2.24]
50. F [2.25]

Completion

1. bit [2.2]

2. characters [2.2]

3. baud rate [2.2]

4. direct [2.3]

5. dibits, tribits [2.4]

6. frequency [2.4]

7. 6 GHz [2.4]

8. bandwidth [2.5]

9. guardbands [2.5]

10. digital [2.7]

11. analog [2.7]

12. process control [2.7]

13. MOdulator/DEModulator (modem) [2.8]

14. internal, external [2.8]

15. Data compression [2.9]

16. bulletin board system (BBS) [2.10]

17. modem eliminator, short-haul modem [2.11]

18. 256 [2.13]

19. transmitter, receiver [2.15]

20. diaphragm [2.15]

21. code [2.17]

22. local exchange carrier (LEC) [2.17]

23. 1.544 M *or* 1,544,000 [2.19]

24. local call [2.19]

25. interoffice, intraoffice [2.19]

26. tandem [2.20]

27. toll trunks, toll offices [2.20]

28. area code [2.20]

29. voice-grade [2.20]

30. leased [2.22]

31. fast busy signal [2.22]

32. 1, 0 [2.23]

33. Chicago [2.23]

34. exchange codes [2.23]

35. Dial Around [2.25]