

***E-Commerce 2014, 10e (Laudon/Traver)***

**Chapter 1 The Revolution Continues**

1) Retail e-commerce is expected to continue growing at double-digit growth rates in 2013-2014.

Answer: TRUE

Difficulty: Moderate

AACSB: Application of knowledge

2) Over 50% of the world's population is now online.

Answer: FALSE

Difficulty: Moderate

AACSB: Application of knowledge

3) E-business involves commercial transactions involving an exchange of value across organizational boundaries.

Answer: FALSE

Difficulty: Moderate

AACSB: Application of knowledge

4) Ubiquity decreases cognitive energy outlays.

Answer: TRUE

Difficulty: Moderate

AACSB: Analytical thinking

5) The fact that e-commerce is conducted on the basis of universal standards decreases market entry costs for merchants.

Answer: TRUE

Difficulty: Difficult

AACSB: Application of knowledge

6) Price transparency refers to the ability of merchants to segment the market into groups willing to pay different prices.

Answer: FALSE

Difficulty: Moderate

AACSB: Application of knowledge

7) Cost transparency refers to the ability of consumers to discover the actual costs merchants pay for products.

Answer: TRUE

Difficulty: Moderate

AACSB: Application of knowledge

8) Customization involves changing a delivered product or service based upon a consumer's preferences or past purchasing behavior.

Answer: TRUE

Difficulty: Moderate

AACSB: Application of knowledge

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9) Web 2.0 describes a set of applications and technologies that encourage and rely on user- and consumer-generated interactivity and content.

Answer: TRUE

Difficulty: Easy

AACSB: Information technology

10) Social e-commerce is the largest type of e-commerce.

Answer: FALSE

Difficulty: Easy

AACSB: Application of knowledge

11) E-commerce as we know it today would not exist without the Internet.

Answer: TRUE

Difficulty: Easy

AACSB: Application of knowledge

12) The emergence of entrepreneurial social and local firms is one of the hallmarks of the Consolidation period of e-commerce.

Answer: FALSE

Difficulty: Moderate

AACSB: Application of knowledge

13) The Reinvention period of e-commerce is as much a sociological phenomenon as it is a technological or business phenomenon.

Answer: TRUE

Difficulty: Moderate

AACSB: Application of knowledge

14) As economists had envisioned, prices of products sold on the Web are consistently lower than elsewhere, and the online marketplace is characterized by decreasing price dispersion.

Answer: FALSE

Difficulty: Difficult

AACSB: Application of knowledge

15) The future of e-commerce will include an increase in regulatory activity both in the United States and worldwide.

Answer: TRUE

Difficulty: Easy

AACSB: Application of knowledge

16) Which of the following statements about e-commerce in the United States in 2013 is *not* true?

- A) Mobile e-commerce generates more revenue than social e-commerce.
- B) Approximately 155 million Americans are expected to make at least one purchase online.
- C) The amount of data that the average American consumes continues to increase.
- D) Growth rates for B2C e-commerce are higher in the United States than in Europe.

Answer: D

Difficulty: Difficult

AACSB: Application of knowledge

17) In 2013, roughly \_\_\_\_\_ million people in the United States access the Internet via tablets.

- A) 23
- B) 43
- C) 123
- D) 143

Answer: C

Difficulty: Difficult

AACSB: Information technology

18) Which of the following is *not* a major business trend in e-commerce in 2013-2014?

- A) Social e-commerce continues to grow.
- B) Small businesses and entrepreneurs are hampered by the rising cost of market entry caused by increased presence of industry giants.
- C) Facebook grows to more than 1.1 billion users.
- D) Social and mobile advertising begins to challenge search engine marketing.

Answer: B

Difficulty: Difficult

AACSB: Application of knowledge

19) All of the following are major technology trends in e-commerce in 2013-2014 *except*:

- A) cloud computing enables the creation of "big data."
- B) apps create a new platform for online marketing and commerce.
- C) the mobile computing platform begins to rival the PC platform.
- D) real-time advertising becomes a reality with gains in computing power and speeds.

Answer: A

Difficulty: Moderate

AACSB: Information technology

20) E-commerce can be defined as:

- A) the use of the Internet, the Web, and mobile apps to transact business.
- B) the use of any Internet technologies in a firm's daily activities.
- C) the digital enablement of transactions and processes within an organization.
- D) any digitally enabled transactions among individuals and organizations.

Answer: A

Difficulty: Easy

AACSB: Application of knowledge

21) Which of the following is *not* a unique feature of e-commerce technology?

- A) interactivity
- B) social technology
- C) global broadcasting
- D) richness

Answer: C

Difficulty: Moderate

AACSB: Information technology

22) The integration of video, audio, and text marketing messages into a single marketing message and consuming experience is an example of which of the following?

- A) richness
- B) ubiquity
- C) information density
- D) personalization

Answer: A

Difficulty: Moderate

AACSB: Application of knowledge

23) Which of the following qualities is *least* likely to decrease a consumer's search costs?

- A) ubiquity
- B) global reach
- C) information density
- D) richness

Answer: D

Difficulty: Difficult

AACSB: Analytical thinking

24) Which of the following is the best definition of transaction cost?

- A) the cost of changing prices
- B) the cost of participating in a market
- C) the cost of finding suitable products
- D) the cost merchants pay to bring their goods to market

Answer: B

Difficulty: Moderate

AACSB: Application of knowledge

25) In 2013, the world's online population was roughly:

- A) 250 million.
- B) 2.5 billion.
- C) 25 billion.
- D) 250 billion.

Answer: B

Difficulty: Moderate

AACSB: Application of knowledge

26) Which of the following is *not* one of the current major social trends in e-commerce in 2013-2014?

- A) Concerns about online privacy decline.
- B) Controversy over content regulation and controls continues.
- C) E-books gain wide acceptance.
- D) Internet security continues to decline.

Answer: A

Difficulty: Difficult

AACSB: Application of knowledge

27) Network externalities are related to which of the following features of e-commerce technology?

- A) richness
- B) interactivity
- C) universal standards
- D) information density

Answer: C

Difficulty: Difficult

AACSB: Application of knowledge

28) E-commerce technologies have changed the traditional tradeoff between the richness and reach of a marketing message. Prior to the development of the Web:

- A) marketing messages had little richness.
- B) the smaller the audience reached, the less rich the message.
- C) the larger the audience reached, the less rich the message.
- D) richness equaled reach.

Answer: C

Difficulty: Moderate

AACSB: Information technology

29) Which of the following is *not* an example of a social network?

- A) Wikipedia
- B) Twitter
- C) Pinterest
- D) Tumblr

Answer: A

Difficulty: Easy

AACSB: Application of knowledge

30) All of the following are major business trends in e-commerce in 2013-2014 *except* for:

- A) the growth of a new app-based online economy.
- B) the expansion of the localization of e-commerce.
- C) the emergence of a new social e-commerce platform.
- D) the eclipse of search engine marketing by the mobile advertising platform.

Answer: D

Difficulty: Moderate

AACSB: Application of knowledge

31) Which type of e-commerce is distinguished by the type of technology used in the transaction rather than by the nature of the market relationship?

- A) consumer-to-consumer (C2C)
- B) social e-commerce
- C) mobile e-commerce
- D) business-to-business (B2B)

Answer: C

Difficulty: Moderate

AACSB: Information technology

32) Which of the following is a mobile photo-sharing application?

- A) WordPress
- B) Tumblr
- C) Wikipedia
- D) Instagram

Answer: D

Difficulty: Easy

AACSB: Information technology

33) Which of the following describes the basic Web policy of large firms during the Invention period?

- A) Integrate social networking and mobile platform with Web site marketing.
- B) Use the Web to connect with suppliers.
- C) Include additional channels to market products.
- D) Maintain a basic, static Web site.

Answer: D

Difficulty: Moderate

AACSB: Analytical thinking

34) The size of the B2B market in 2013 is estimated to be around:

- A) \$470 million.
- B) \$4.7 billion.
- C) \$470 billion.
- D) \$4.7 trillion.

Answer: D

Difficulty: Moderate

AACSB: Application of knowledge

35) Interactivity in the context of e-commerce can be described as the:

- A) ability to physically touch and manipulate a product.
- B) complexity and content of a message.
- C) ability of consumers to create and distribute content.
- D) enabling of two-way communication between consumer and merchant.

Answer: D

Difficulty: Moderate

AACSB: Application of knowledge

- 36) Which of the following statements about the Web is *not* true?
- A) It is the technology upon which the Internet is based.
  - B) It was developed in the early 1990s.
  - C) It provides access to pages written in HTML.
  - D) It provides access to Web pages that incorporate graphics, sound, and multimedia.

Answer: A

Difficulty: Difficult

AACSB: Application of knowledge

- 37) In 2013, there were an estimated \_\_\_\_\_ Internet hosts.

- A) 1 million
- B) 10 million
- C) 100 million
- D) 1 billion

Answer: D

Difficulty: Moderate

AACSB: Application of knowledge

- 38) All of the following can be considered a precursor to e-commerce *except*:

- A) DNS.
- B) Baxter Healthcare's remote order entry system.
- C) the French Minitel.
- D) Electronic Data Interchange.

Answer: A

Difficulty: Moderate

AACSB: Application of knowledge

- 39) In the B2C arena, \_\_\_\_\_ was the first truly large-scale digitally enabled transaction system.

- A) Telex
- B) the Baxter Healthcare system
- C) the French Minitel
- D) EDI

Answer: C

Difficulty: Moderate

AACSB: Application of knowledge

- 40) E-commerce can be said to have begun in:

- A) 1983.
- B) 1985.
- C) 1995.
- D) 2001.

Answer: C

Difficulty: Easy

AACSB: Application of knowledge

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- 41) Business-to-consumer (B2C) e-commerce in the United States:  
A) has grown at double-digit rates between 2010 and 2013.  
B) is expected to account for about \$40 billion in total sales in 2013.  
C) constitutes over 30% of the overall U.S. retail market.  
D) is growing more slowly as it confronts its own fundamental limitations.

Answer: A

Difficulty: Difficult

AACSB: Application of knowledge

- 42) Which of the following is *not* true about the use of apps?  
A) The average U.S. consumer spends about 2 hours a day using apps.  
B) Users spend more time using apps than they do using desktops or mobile Web sites.  
C) Apps are easier to control and monetize than Web sites.  
D) Google can use Web crawlers to index apps.

Answer: D

Difficulty: Difficult

AACSB: Application of knowledge

- 43) All of the following are issues facing Pinterest *except*:

- A) copyright infringement.  
B) inability to attract users.  
C) competition.  
D) spam.

Answer: B

Difficulty: Moderate

AACSB: Application of knowledge

- 44) Which of the following is a characteristic of e-commerce during the Invention period?

- A) mobile technology  
B) earnings and profit emphasis  
C) distintermediation  
D) extensive government surveillance

Answer: C

Difficulty: Difficult

AACSB: Application of knowledge

- 45) All of the following are characteristics of Web 2.0 sites and applications *except*:

- A) they are inherently highly interactive.  
B) they rely on mobile access to the Web.  
C) they tend to rely on user-generated content.  
D) they present marketers with extraordinary opportunities for targeted marketing and advertising.

Answer: B

Difficulty: Moderate

AACSB: Application of knowledge

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- 46) Which of the following is *not* a characteristic of a perfect competitive market?
- A) Price, cost, and quality information are equally distributed.
  - B) A nearly infinite set of suppliers compete against one another.
  - C) Customers have access to all relevant information worldwide.
  - D) It is highly regulated.

Answer: D

Difficulty: Difficult

AACSB: Analytical thinking

- 47) All of the following were visions of e-commerce expressed during the early years of e-commerce *except*:

- A) a nearly perfect competitive market.
- B) friction-free commerce.
- C) disintermediation.
- D) fast follower advantage.

Answer: D

Difficulty: Difficult

AACSB: Analytical thinking

- 48) Unfair competitive advantages occur when:

- A) one competitor has an advantage others cannot purchase.
- B) market middlemen are displaced.
- C) information is equally distributed and transaction costs are low.
- D) firms are able to gather monopoly profits.

Answer: A

Difficulty: Moderate

AACSB: Application of knowledge

- 49) The early years of e-commerce were driven by all of the following factors *except*:

- A) an emphasis on exploiting traditional distribution channels.
- B) a huge infusion of venture capital funds.
- C) an emphasis on quickly achieving a very high market visibility.
- D) visions of profiting from new technology.

Answer: A

Difficulty: Difficult

AACSB: Analytical thinking

50) The early years of e-commerce are considered:

- A) the most promising time in history for the successful implementation of first mover advantages.
- B) an economist's dream come true, where for a brief time consumers had access to all relevant market information and transaction costs plummeted.
- C) a stunning technological success as the Internet and the Web increased from a few thousand to billions of e-commerce transactions per year.
- D) a dramatic business success as 85% of dot-coms formed since 1995 became flourishing businesses.

Answer: C

Difficulty: Difficult

AACSB: Analytical thinking

51) Which of the following best describes the early years of e-commerce?

- A) They were a technological success but a mixed business success.
- B) They were a technological success but a business failure.
- C) They were a technological failure but a business success.
- D) They were a mixed technological and business success.

Answer: A

Difficulty: Difficult

AACSB: Analytical thinking

52) The early years of e-commerce were driven by all of the following factors *except*:

- A) an emphasis on exploiting traditional distribution channels.
- B) a huge infusion of venture capital funds.
- C) an emphasis on quickly achieving a very high market visibility.
- D) visions of profiting from new technology.

Answer: A

Difficulty: Difficult

AACSB: Analytical thinking

53) Which of the following is a characteristic of the Reinvention phase of e-commerce?

- A) massive proliferation of dot-com start-ups
- B) widespread adoption of broadband networks
- C) rapid growth of search engine advertising
- D) widespread adoption of consumer mobile devices

Answer: D

Difficulty: Difficult

AACSB: Analytical thinking

54) Which of the following is a characteristic of the Consolidation phase of e-commerce?

- A) predominance of pure online strategies
- B) emphasis on revenue growth versus profits
- C) first mover advantages
- D) shift to a business-driven approach

Answer: D

Difficulty: Difficult

AACSB: Analytical thinking

- 55) Which of the following is *not* true regarding e-commerce today?
- A) Economists' visions of a friction-free market have not been realized.
  - B) Consumers are less price-sensitive than expected.
  - C) There remains considerable persistent price dispersion.
  - D) The market middlemen disappeared.

Answer: D

Difficulty: Difficult

AACSB: Analytical thinking

- 56) Which of the following statements is *not* true?
- A) Information asymmetries are continually being introduced by merchants and marketers.
  - B) Intermediaries have not disappeared.
  - C) Overall transaction costs have dropped dramatically.
  - D) Brands remain very important in e-commerce.

Answer: C

Difficulty: Difficult

AACSB: Analytical thinking

- 57) Which of the following types of merchants has the highest share of retail online sales?
- A) virtual (Web only)
  - B) catalog/call center
  - C) retail chain
  - D) consumer brand manufacturer
- Answer: A
- Difficulty: Moderate
- AACSB: Application of knowledge

- 58) Retail chains account for around \_\_\_\_\_ % of online retail firm revenues.
- A) 15
  - B) 35
  - C) 75
  - D) 95
- Answer: B
- Difficulty: Moderate
- AACSB: Application of knowledge

- 59) One of the predictions for the future of e-commerce is that:
- A) overall revenues from e-commerce will grow at an annualized rate of about 14% a year through 2017.
  - B) the first movers from the early years of e-commerce will retain or increase their market share as they continue to exploit economies of scale and switching costs.
  - C) prices will lower enough to encourage more consumers to engage in online shopping.
  - D) the number of online shoppers will continue to grow at double-digit rates.
- Answer: A
- Difficulty: Difficult
- AACSB: Application of knowledge

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60) Which of the following is the top-selling online retail category?

- A) apparel/accessories
- B) computers/electronics
- C) mass merchant/department stores
- D) office supplies

Answer: B

Difficulty: Moderate

AACSB: Application of knowledge

61) Which of the following is the top online retailer ranked by online sales?

- A) Apple
- B) Amazon
- C) Staples
- D) Walmart

Answer: B

Difficulty: Easy

AACSB: Application of knowledge

62) Above all, e-commerce is a \_\_\_\_\_ phenomenon.

- A) technology-driven
- B) finance-driven
- C) sociological
- D) government-driven

Answer: A

Difficulty: Moderate

AACSB: Information technology

63) Which business application is associated with the technological development of local area networks and client/server computing?

- A) transaction automation (e.g., payroll)
- B) desktop automation (e.g., word processing)
- C) industrial system automation (e.g., supply chain management)
- D) workgroup automation (e.g., document sharing)

Answer: D

Difficulty: Difficult

AACSB: Information technology

64) Which of the following is one of the three primary societal issues related to e-commerce?

- A) liability
- B) anonymity
- C) equity
- D) individual privacy

Answer: D

Difficulty: Moderate

AACSB: Application of knowledge

65) Which of the following statements is *not* true?

- A) No one academic perspective dominates research about e-commerce.
- B) Information systems researchers take a purely technical approach to e-commerce.
- C) There are two primary approaches to e-commerce: behavioral and technical.
- D) Management scientists are interested in e-commerce as an opportunity to study how business firms can exploit the Internet to achieve more efficient business operations.

Answer: B

Difficulty: Difficult

AACSB: Analytical thinking

66) The costs incurred by merchants in having to change product prices (such as the costs of reentering prices into computer systems) are referred to as \_\_\_\_\_ costs.

Answer: menu

Difficulty: Moderate

AACSB: Application of knowledge

67) \_\_\_\_\_ refers to any disparity in relevant market information among parties in a transaction.

Answer: Information asymmetry

Difficulty: Moderate

AACSB: Reflective thinking

68) A(n) \_\_\_\_\_ extends the marketplace beyond traditional boundaries.

Answer: marketspace

Difficulty: Easy

AACSB: Application of knowledge

69) The total number of users or customers an e-commerce business can obtain is a measure of its \_\_\_\_\_.

Answer: reach

Difficulty: Moderate

AACSB: Application of knowledge

70) \_\_\_\_\_ refers to the complexity and content of a message.

Answer: Richness

Difficulty: Moderate

AACSB: Application of knowledge

71) The targeting of marketing messages to specific individuals by adjusting the message to a person's name, interests, and past purchases is called \_\_\_\_\_.

Answer: personalization

Difficulty: Moderate

AACSB: Application of knowledge

72) The \_\_\_\_\_ was the original "killer app" that made the Internet commercially interesting and extraordinarily serviceable.

Answer: World Wide Web, Web

Difficulty: Moderate

AACSB: Application of knowledge

73) E-commerce is available just about everywhere and anytime. This is known as \_\_\_\_\_.

Answer: ubiquity

Difficulty: Moderate

AACSB: Application of knowledge

74) \_\_\_\_\_ refers to the displacement of market middlemen.

Answer: Disintermediation

Difficulty: Moderate

AACSB: Application of knowledge

75) In \_\_\_\_\_ commerce, information is equally distributed, transaction costs are low, prices can be dynamically adjusted to reflect actual demand, intermediaries decline, and unfair competitive advantages are eliminated.

Answer: friction-free

Difficulty: Difficult

AACSB: Application of knowledge

76) A(n) \_\_\_\_\_ occurs when everyone in a group receives value because all participants use the same tool or product.

Answer: network effect

Difficulty: Moderate

AACSB: Application of knowledge

77) A firm that is first to market in a particular area and that moves quickly to gather market share is referred to as a(n) \_\_\_\_\_.

Answer: first mover

Difficulty: Moderate

AACSB: Application of knowledge

78) The first evolutionary phase of e-commerce, from 1995 to 2000, characterized as technology-driven and ungoverned, was a period of \_\_\_\_\_.

Answer: innovation, invention

Difficulty: Moderate

AACSB: Application of knowledge

79) An economist is most likely to be interested in a(n) \_\_\_\_\_, rather than technical, approach to studying e-commerce.

Answer: behavioral

Difficulty: Moderate

AACSB: Application of knowledge

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80) \_\_\_\_\_ is the world's largest online consumer-generated video posting site.

Answer: YouTube, YouTube.com

Difficulty: Easy

AACSB: Application of knowledge

81) Define the terms *e-business* and *e-commerce* and explain the difference. What is the key factor in determining if a transaction is "commerce"?

Answer: E-business refers primarily to digitally enabled transactions within a firm, involving information systems under the control of the firm. E-business does not include commercial transactions in which an exchange of value across organizational boundaries takes place. E-commerce, on the other hand, is a revenue-generating operation. The key factor in determining if a transaction is commerce, therefore, is "exchange of value." In order to be e-commerce, a transaction must include the direct production of revenue.

Difficulty: Easy

AACSB: Analytical thinking; Written and oral communication

82) Identify the eight unique features of e-commerce technology and explain how these features set e-commerce apart from more traditional ways of conducting commercial transactions.

Answer: The eight unique features of e-commerce technology are ubiquity, global reach, universal standards, richness, interactivity, information density, personalization/customization, and social technology. The fact that e-commerce is available nearly everywhere, at any time, (ubiquity) extends the marketplace beyond traditional boundaries and removes it from a temporal and geographic location. A marketspace is created in which shopping can take place anywhere, enhancing consumer convenience and reducing shopping costs, whereas in traditional commerce the marketplace is a physical place you must visit in order to transact. The global reach of e-commerce means that commerce is enabled across national and cultural boundaries as never before, with potentially billions of consumers and millions of businesses worldwide included in the marketspace. Traditional commerce, by contrast, is local or regional involving local merchants or national merchants with local outlets. Universal standards (one set of technical media standards) also allow for the seamless enablement of global commerce. In contrast, most traditional commerce technologies differ from one nation to the next. In traditional markets, national sales forces and small retail stores can provide a complex and content-rich message. However, there is generally a trade-off between the richness of the message and the number of consumers who can be reached with the marketing message. In e-commerce the trade-off is no longer necessary. An information rich environment is extended globally. Unlike any other commercial technology of the twentieth century, except perhaps the telephone, e-commerce technologies are interactive, allowing for two-way communication between the seller and the consumer. E-commerce technologies reduce information collection, storage, processing, and communication costs, thereby greatly increasing the prevalence, accuracy, and timeliness of information. This information density (information that is more plentiful, cheaper, and of higher quality) sets e-commerce apart from all other traditional methods of conducting transactions. E-commerce technologies also permit the personalization and customization of marketing messages on a level that was impossible with previous commerce technologies. Marketing messages can be targeted to specific individuals based on their interests and past purchasing behavior, and the product or service can be altered to suit a customer's preferences and prior behavior. Social technology allows users to easily generate and share content and permits a many-to-many model of mass communications that is different from previous technologies. This supports the creation of new business models and products that support social network services.

Difficulty: Difficult

AACSB: Analytical thinking; Information technology; Written and oral communication

83) Has e-commerce changed the marketing of goods? If so, how?

Answer: E-commerce has greatly changed the marketing of goods. Before e-commerce was developed, the marketing and sale of goods was a mass-marketing and sales force-driven process. Marketers viewed consumers as passive targets of advertising campaigns. E-commerce has brought many new possibilities for marketing. The Internet and Web can deliver, to an audience of millions, rich marketing messages with text, video, and audio in a way not possible with traditional commerce technologies such as radio, television, or magazines. Merchants can target their marketing messages to specific individuals by adjusting the message to a person's name, interests, and past purchases. In addition, much information about the consumer can be gathered from the Web site the consumer visits. With the increase in information density, a great deal of information about the consumer's past purchases and behavior can be stored and used by online merchants. The result is a level of personalization and customization unthinkable with existing commerce technologies.

Difficulty: Moderate

AACSB: Analytical thinking; Written and oral communication

84) What is a first mover? Why was being a first mover considered to be important during the early years of e-commerce?

Answer: First movers are firms who are first to market in a particular area and who move quickly to gather market share. First movers hoped to establish a large customer base quickly, build brand name recognition early, and inhibit competitors by building in switching costs for their customers through proprietary interface designs and features. The thinking was that once customers became accustomed to using a company's unique Web interface and feature set, they could not easily be switched to competitors. In the best case, the entrepreneurial firm would invent proprietary technologies and techniques that almost everyone adopted, creating a network effect, which occurs where all participants receive value from the fact that everyone else uses the same tool or product.

Difficulty: Moderate

AACSB: Analytical thinking; Written and oral communication

85) List and briefly explain the main types of e-commerce.

Answer: The main types of e-commerce are Business-to-Consumer (B2C), in which online businesses attempt to reach individual consumers; Business-to-Business (B2B), in which businesses focus on selling to other businesses; Consumer-to-Consumer (C2C), which provides a market in which consumers can sell goods to each other; mobile e-commerce (m-commerce), which refers to the use of wireless digital devices to enable Web transactions; social e-commerce, which is commerce enabled by social networks and online social relationships; and local e-commerce, which is e-commerce that is focused on engaging the customer based on his or her geographical location.

Difficulty: Moderate

AACSB: Analytical thinking; Written and oral communication

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86) Describe the visions and forces during the early days of e-commerce in terms of what the various interest groups hoped for: the computer science and information technology people; the economists; and the entrepreneurs, venture capitalists and marketers. Explain whether what each group envisioned came to fruition and why or why not.

Answer: The computer scientists and information technologists' vision was of a universal communications and computing environment that everyone could access with inexpensive computers. Their interest was in creating a vast worldwide information collection from libraries, universities, governments, and scientific institutions that was ungoverned by any nation and free to all. They believed that the Internet, and by extension, the e-commerce that operated within the infrastructure, should be self-governed and self-regulated.

The economists envisioned a near-perfect competitive market where price, cost, and quality information are equally distributed. The marketspace would include a nearly infinite number of suppliers with equal access to hundreds of millions of customers, but where those consumers in turn would have access to all relevant market information—a hypercompetitive market. Market middlemen would disappear, resulting in lowered costs to consumers. This intensely competitive, disintermediated environment with lowered transaction costs would eliminate product brands as well as the possibility of monopoly profits based on brands, geography, or special access factors. Unfair competitive advantages and the ability to reap returns on capital that far extended a fair market rate of return would be eliminated. Their vision was called friction-free commerce.

The entrepreneurs, venture capitalists, and marketers in turn saw e-commerce as an opportunity to earn great returns on invested capital. They saw the e-commerce marketspace and technologies as a powerful method of increasing their ability to even more precisely segment the market into groups with different price sensitivities. They believed that huge profits could be garnered by firms that quickly achieved high market visibility and that these successful first movers would become the new intermediaries of e-commerce, displacing the traditional retail merchants and content suppliers.

The computer scientists' vision of an ungoverned Internet has not come to fruition as governments have increasingly sought to regulate and control the technology to ensure that positive social benefits result. The economists' vision has also for the most part not materialized for a variety of reasons. Consumers have proven to be less price sensitive than expected and the importance of brand names to consumers' perceptions of quality and service has been extended rather than decreased or eliminated. Entrepreneurs have discovered new methods for differentiating products and services. New information asymmetries are continually being introduced by marketers. Disintermediation has also not occurred as new middlemen emerged. The visions of the entrepreneurs, venture capitalists, and marketers have also largely not come to fruition as the first movers from the early years of e-commerce only rarely succeeded. The fast follower large traditional firms with the resources needed to develop mature markets are displacing most of the venture capitalist backed entrepreneurs.

Difficulty: Difficult

AACSB: Analytical thinking; Written and oral communication

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**E-Commerce 2014, 10e (Laudon/Traver)**  
**Chapter 2 E-commerce Business Models and Concepts**

- 1) A value proposition defines how a company's product or service fulfills the needs of a customer.

Answer: TRUE

Difficulty: Easy

AACSB: Application of knowledge

- 2) The terms *revenue model* and *financial model* can be used interchangeably.

Answer: TRUE

Difficulty: Moderate

AACSB: Application of knowledge

- 3) In order to be considered successful, a firm must produce returns greater than alternative investments.

Answer: TRUE

Difficulty: Easy

AACSB: Application of knowledge

- 4) An asymmetry exists whenever one participant in a market has more resources than other participants.

Answer: TRUE

Difficulty: Moderate

AACSB: Application of knowledge

- 5) Most first movers have the complementary resources needed to sustain their advantage.

Answer: FALSE

Difficulty: Moderate

AACSB: Application of knowledge

- 6) All firms need an organization to efficiently implement their business plans and strategies.

Answer: TRUE

Difficulty: Easy

AACSB: Application of knowledge

- 7) Visitors to specialized niche vortals tend to spend less money than the average visitor to a horizontal portal.

Answer: FALSE

Difficulty: Difficult

AACSB: Application of knowledge

- 8) Barriers to entry into the e-tail marketplace are high.

Answer: FALSE

Difficulty: Moderate

AACSB: Application of knowledge

- 9) The JOBS Act allows a start-up company to use crowdfunding to raise up to \$10 million

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within a one-year period.

Answer: FALSE

Difficulty: Moderate

AACSB: Application of knowledge

10) Scale economies are efficiencies that result from flattening the hierarchy of an organization.

Answer: FALSE

Difficulty: Moderate

AACSB: Application of knowledge

11) Service providers primarily use the advertising revenue model.

Answer: FALSE

Difficulty: Easy

AACSB: Application of knowledge

12) The Internet's universal standards decrease the cost of industry and firm operations.

Answer: TRUE

Difficulty: Difficult

AACSB: Application of knowledge

13) Interactivity that enables product customization alters industry structure by reducing the threat of substitutes.

Answer: TRUE

Difficulty: Difficult

AACSB: Application of knowledge

14) Interfirm rivalry is one area of the business environment where e-commerce technologies have had an impact on most industries.

Answer: TRUE

Difficulty: Difficult

AACSB: Information technology

15) Social technologies change industry structure by shifting programming and editorial decisions to consumers.

Answer: TRUE

Difficulty: Difficult

AACSB: Information technology

16) \_\_\_\_\_ and \_\_\_\_\_ are typically the most easily identifiable aspects of a company's business model.

A) Market strategy; market opportunity

B) Value proposition; revenue model

C) Value proposition; competitive environment

D) Revenue model; market strategy

Answer: B

Difficulty: Moderate

AACSB: Application of knowledge

17) All of the following are key elements of a business model *except*:

- A) competitive environment.
- B) organizational development.
- C) information technology strategy.
- D) market strategy.

Answer: C

Difficulty: Moderate

AACSB: Application of knowledge

18) Which element of the business model addresses the question of why a customer should buy from the firm?

- A) revenue model
- B) competitive advantage
- C) market strategy
- D) value proposition

Answer: D

Difficulty: Moderate

AACSB: Application of knowledge

19) Which element of the business model examines who else occupies the firm's intended marketspace?

- A) value proposition
- B) competitive environment
- C) competitive advantage
- D) market strategy

Answer: B

Difficulty: Moderate

AACSB: Application of knowledge

20) Which of the following are Amazon's primary value propositions?

- A) personalization and customization
- B) selection and convenience
- C) reduction of price discovery cost
- D) management of product delivery

Answer: B

Difficulty: Moderate

AACSB: Analytical thinking

21) Your solar-panel manufacturing firm has developed a unique and patented process for creating high-efficiency solar panels at a fraction of current costs. This will enable your firm to adopt a strategy of:

- A) cost competition.
- B) scope.
- C) scale.
- D) focus.

Answer: A

Difficulty: Moderate

AACSB: Analytical thinking

22) A firm's \_\_\_\_\_ describes how a firm will produce a superior return on invested capital.

- A) value proposition
- B) revenue model
- C) market strategy
- D) competitive advantage

Answer: B

Difficulty: Moderate

AACSB: Application of knowledge

23) Which of the following is an example of the subscription revenue model?

- A) Ancestry.com
- B) eBay
- C) Amazon
- D) Twitter

Answer: A

Difficulty: Moderate

AACSB: Application of knowledge

24) Stickiness is an important attribute for which revenue model?

- A) advertising revenue model
- B) subscription revenue model
- C) transaction fee revenue model
- D) sales revenue model

Answer: A

Difficulty: Moderate

AACSB: Application of knowledge

25) Which of the following companies utilizes a transaction fee revenue model?

- A) WSJ.com
- B) E\*Trade
- C) Twitter
- D) Sears.com

Answer: B

Difficulty: Moderate

AACSB: Application of knowledge

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26) Which of the following is an example of the affiliate revenue model?

- A) Yahoo
- B) eBay
- C) Gap.com
- D) MyPoints

Answer: D

Difficulty: Moderate

AACSB: Application of knowledge

27) Assume you are analyzing the market opportunity of a distance learning company, Learnmore.com, that creates education courses delivered over the Internet for the Fortune 1000 corporate market. Assume that the overall size of the distance learning market is \$25 billion. The overall market can be broken down into three major market segments: Corporate, College, and Elementary/High School, each of which accounts for a third of the market. Within the Corporate market, there are two market niches: Fortune 1000, which accounts for 60% of the market, and all others, which together account for 40% of the market. What is Learnmore.com's realistic market opportunity, approximately?

- A) \$5 billion
- B) \$6.6 billion
- C) \$165 billion
- D) \$25 billion

Answer: A

Difficulty: Difficult

AACSB: Analytical thinking

28) Which of the following factors is *not* a significant influence on a company's competitive environment?

- A) how many competitors are active
- B) what the market share of each competitor is
- C) the availability of supportive organizational structures
- D) how competitors price their products

Answer: C

Difficulty: Difficult

AACSB: Application of knowledge

29) Which of the following would be considered an indirect competitor of American Airlines?

- A) JetBlue
- B) Zipcar
- C) Orbitz
- D) British Airways

Answer: B

Difficulty: Moderate

AACSB: Analytical thinking

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- 30) The existence of a large number of competitors in any one market segment may indicate:
- A) an untapped market niche.
  - B) the market is saturated.
  - C) no one firm has differentiated itself within that market.
  - D) a market that has already been tried without success.

Answer: B

Difficulty: Difficult

AACSB: Application of knowledge

- 31) All of the following can be considered a direct or indirect competitor of Amazon.com *except*:

- A) eBay.
- B) Apple's iTunes Store.
- C) Barnesandnoble.com.
- D) Starbucks.

Answer: D

Difficulty: Moderate

AACSB: Analytical thinking

- 32) A perfect market is one in which:

- A) there are no competitive advantages or asymmetries because all firms have equal access to all the factors of production.
- B) one firm develops an advantage based on a factor of production that other firms cannot purchase.
- C) one participant in the market has more resources than the others.
- D) competition is at a minimum, as each niche market within an industry is served by the company with the greatest competitive advantage.

Answer: A

Difficulty: Moderate

AACSB: Application of knowledge

- 33) The business model of e-distributors is quite similar to that of:

- A) e-tailers.
- B) transaction brokers.
- C) exchanges.
- D) service providers.

Answer: A

Difficulty: Moderate

AACSB: Analytical thinking

- 34) All of the following use an advertising revenue model *except*:

- A) Facebook.
- B) Yahoo.
- C) Google.
- D) Amazon.

Answer: D

Difficulty: Moderate

AACSB: Application of knowledge

35) Organizations that provide not only funding but also an array of services to start-up companies are referred to as:

- A) angel investors.
- B) crowdfunders.
- C) incubators.
- D) venture capital investors.

Answer: C

Difficulty: Moderate

AACSB: Application of knowledge

36) Which of the following is *not* considered a portal?

- A) Yahoo
- B) MSN
- C) WSJ.com
- D) AOL

Answer: C

Difficulty: Easy

AACSB: Application of knowledge

37) Horizontal or general portals primarily generate revenue in all of the following ways *except*:

- A) charging advertisers for ad placement.
- B) collecting transaction fees.
- C) sales of goods.
- D) charging subscription fees.

Answer: C

Difficulty: Moderate

AACSB: Application of knowledge

38) A business document that specifically details how you plan on selling your product and find new customers is called a:

- A) sales analysis.
- B) business plan.
- C) competitive strategy.
- D) market strategy.

Answer: D

Difficulty: Easy

AACSB: Application of knowledge

39) Which of the following is *not* a community provider?

- A) LinkedIn
- B) Facebook
- C) Priceline
- D) Pinterest

Answer: C

Difficulty: Easy

AACSB: Application of knowledge

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40) Which of the following is *not* a variation of the e-tailer business model?

- A) bricks-and-clicks
- B) virtual merchant
- C) market creator
- D) manufacturer-direct

Answer: C

Difficulty: Moderate

AACSB: Application of knowledge

41) An example of a company using the content provider model is:

- A) Priceline.
- B) Rhapsody.com.
- C) Dell.
- D) eBay.

Answer: B

Difficulty: Moderate

AACSB: Application of knowledge

42) Which of the following is *not* an example of the bricks-and-clicks e-tailing business model?

- A) Walmart.com
- B) JCPenney.com
- C) Dell.com
- D) Staples.com

Answer: C

Difficulty: Easy

AACSB: Application of knowledge

43) The overall retail market in the United States in 2013 was estimated at about:

- A) \$39 trillion.
- B) \$3.9 trillion.
- C) \$390 billion.
- D) \$39 billion.

Answer: B

Difficulty: Moderate

AACSB: Application of knowledge

44) In general, the key to becoming a successful content provider is to:

- A) own the content being provided.
- B) own the technology by which content is created, presented, and distributed.
- C) provide online content for free.
- D) provide other services as well as online content.

Answer: A

Difficulty: Moderate

AACSB: Application of knowledge

45) Which of the following was *not* able to successfully implement a freemium business model?

- A) Pandora
- B) MailChimp
- C) Evernote
- D) Ning

Answer: D

Difficulty: Moderate

AACSB: Application of knowledge

46) All of the following may lead to a competitive advantage *except*:

- A) less expensive suppliers.
- B) better employees.
- C) fewer products.
- D) superior products.

Answer: C

Difficulty: Moderate

AACSB: Application of knowledge

47) The basic value proposition of community providers is:

- A) they offer a fast, convenient one-stop site where users can focus on their most important concerns and interests.
- B) they offer consumers valuable, convenient, time-saving, and low cost alternatives to traditional service providers.
- C) they create a digital electronic environment for buyers and sellers to meet, agree on a price, and transact.
- D) they increase customers' productivity by helping them get things done faster and more cheaply.

Answer: A

Difficulty: Moderate

AACSB: Application of knowledge

48) All of the following are examples of business-to-business (B2B) business models *except*:

- A) e-distributors.
- B) e-procurement.
- C) private industrial networks.
- D) e-tailers.

Answer: D

Difficulty: Easy

AACSB: Application of knowledge

49) What is the primary revenue model for an e-distributor?

- A) sales
- B) transaction fee
- C) advertising
- D) subscription

Answer: A

Difficulty: Moderate

AACSB: Application of knowledge

50) Grainger.com is an example of which of the following business models?

- A) B2B service provider
- B) exchange
- C) e-distributor
- D) industry consortia

Answer: C

Difficulty: Moderate

AACSB: Application of knowledge

51) \_\_\_\_\_ create and sell access to digital electronic markets.

- A) E-distributors
- B) Portals
- C) E-procurement firms
- D) Market creators

Answer: C

Difficulty: Moderate

AACSB: Application of knowledge

52) One of the competitive advantages of a B2B service provider is that it can spread the cost of an expensive software system over many users, achieving efficiencies referred to as:

- A) application efficiencies.
- B) network efficiencies.
- C) scale economies.
- D) network externalities.

Answer: C

Difficulty: Moderate

AACSB: Application of knowledge

53) Over the past decade, the number of exchanges has:

- A) greatly increased.
- B) diminished sharply.
- C) stayed about the same.
- D) increased slowly but steadily.

Answer: B

Difficulty: Moderate

AACSB: Application of knowledge

54) Exostar is an example of a(n):

- A) private industrial network.
- B) exchange.
- C) industry consortium.
- D) e-distributor.

Answer: C

Difficulty: Easy

AACSB: Application of knowledge

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55) Which of the following is an unfair competitive advantage?

- A) brand name
- B) access to global markets
- C) lower product prices
- D) superior technology

Answer: A

Difficulty: Moderate

AACSB: Application of knowledge

56) The element of a business model that is responsible for making the model work is:

- A) the management team.
- B) the organizational structure.
- C) the firm's key competitive advantage.
- D) the market strategy.

Answer: A

Difficulty: Moderate

AACSB: Application of knowledge

57) eBay uses all of the following business models *except*:

- A) B2C market creator.
- B) C2C market creator.
- C) content provider.
- D) e-commerce infrastructure provider.

Answer: C

Difficulty: Moderate

AACSB: Application of knowledge

58) Your startup firm has developed Web-based note-taking software that allows participants to create and share virtual notes attached to existing Web pages. You anticipate marketing your online application to Web development and design companies. Which of the following revenue models is the most appropriate for your new company?

- A) advertising
- B) transaction fee
- C) affiliate
- D) subscription

Answer: D

Difficulty: Moderate

AACSB: Analytical thinking

59) Which type of investor typically becomes interested in a start-up company after it has begun generating revenue?

- A) incubators
- B) angel investors
- C) crowdfunders
- D) venture capital investors

Answer: D

Difficulty: Moderate

AACSB: Application of knowledge

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60) Which of the following features of e-commerce technology changes industry structure by lowering barriers to entry but greatly expands the market at the same time?

- A) global reach
- B) richness
- C) interactivity
- D) personalization

Answer: A

Difficulty: Moderate

AACSB: Information technology

61) All of the following are business models employed by the music industry *except*:

- A) subscription.
- B) peer-to-peer streaming.
- C) download-and-own.
- D) cloud streaming.

Answer: B

Difficulty: Moderate

AACSB: Application of knowledge

62) Which of the following is *not* a primary activity in a firm value chain?

- A) inbound logistics
- B) finance/accounting
- C) operations
- D) sales and marketing

Answer: B

Difficulty: Moderate

AACSB: Application of knowledge

63) A \_\_\_\_\_ coordinates a firm's suppliers, distributors, and delivery firms with its own production needs using an Internet-based supply chain management system.

- A) value chain
- B) value system
- C) value web
- D) business strategy

Answer: C

Difficulty: Moderate

AACSB: Application of knowledge

64) If you wished to leverage the ubiquitous nature of the Web to differentiate your product, you would:

- A) enable individual customization of the product by consumers.
- B) implement a strategy of commoditization.
- C) adopt a strategy of cost competition.
- D) develop a scope strategy to compete within a narrower market segment.

Answer: A

Difficulty: Moderate

AACSB: Analytical thinking

65) A strategy designed to compete within a narrow market or product segment is called a \_\_\_\_\_ strategy.

- A) scope
- B) differentiation
- C) cost
- D) focus

Answer: D

Difficulty: Moderate

AACSB: Application of knowledge

66) A(n) \_\_\_\_\_ is a set of planned activities designed to result in a profit in the marketplace.

Answer: business model

Difficulty: Moderate

AACSB: Application of knowledge

67) In the \_\_\_\_\_ revenue model, a Web site that offers users content or services charges a fee for access to some or all of its offerings.

Answer: subscription

Difficulty: Moderate

AACSB: Application of knowledge

68) The strategy of customer intimacy focuses on developing strong ties with customers in order to increase \_\_\_\_\_ costs.

Answer: switching

Difficulty: Moderate

AACSB: Application of knowledge

69) A(n) \_\_\_\_\_ is a company that sells products and services that are very similar and in the same market segment.

Answer: direct competitor

Difficulty: Moderate

AACSB: Application of knowledge

70) The use by a company of its competitive advantage to achieve more advantage in surrounding markets is known as \_\_\_\_\_.

Answer: leverage

Difficulty: Moderate

AACSB: Application of knowledge

71) A wealthy individual who invests personal funds in a start-up in exchange for an equity stock in the business is referred to as a(n) \_\_\_\_\_.

Answer: angel investor

Difficulty: Moderate

AACSB: Application of knowledge

72) The financial services, travel services, and job placement services industries use the \_\_\_\_\_ business model.

Answer: transaction broker

Difficulty: Easy

AACSB: Application of knowledge

73) In the \_\_\_\_\_ business model, a Web-based business builds a digital environment in which buyers and sellers can meet, display products, search for products, and establish prices.

Answer: market creator

Difficulty: Moderate

AACSB: Application of knowledge

74) Personal funds derived from savings, credit card advances, home equity loans, and loans from family and friends are examples of \_\_\_\_\_ that an entrepreneur may use to get a business off the ground.

Answer: seed capital

Difficulty: Moderate

AACSB: Application of knowledge

75) A(n) \_\_\_\_\_ marketplace supplies products and services of interest to particular industries.

Answer: vertical

Difficulty: Moderate

AACSB: Application of knowledge

76) \_\_\_\_\_ is a social network based on 140-character messages.

Answer: Twitter

Difficulty: Moderate

AACSB: Application of knowledge

77) An industry \_\_\_\_\_ is an effort to understand and describe the nature of competition in an industry, the nature of substitute products, the barriers to entry, and the relative strength of consumers and suppliers.

Answer: structural analysis

Difficulty: Moderate

AACSB: Application of knowledge

78) A(n) \_\_\_\_\_ is the set of activities performed in an industry or in a firm that transforms raw inputs into final products and services.

Answer: value chain

Difficulty: Moderate

AACSB: Application of knowledge

79) \_\_\_\_\_ occurs when there are no differences among products or services and the only basis for choosing a particular product or service is price.

Answer: Commoditization

Difficulty: Moderate

AACSB: Application of knowledge

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80) A(n) \_\_\_\_\_ strategy is a strategy to compete in all markets around the globe rather than merely in local, regional, or national markets.

Answer: scope

Difficulty: Moderate

AACSB: Application of knowledge

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81) Define and describe the transaction broker business model and discuss the eight components of the business model for this type of B2C firm.

Answer: The transaction broker business model is most commonly found in the financial services, travel services, and job placement services industries. The eight elements of a business model are value proposition, revenue model, market opportunity, competitive environment, competitive advantage, market strategy, organizational development, and management team.

The primary value proposition for a transaction broker is the saving of time and money. These sites also often provide timely information and opinion. They offer the consumer the opportunity to increase their individual productivity by helping them to get things done faster and more cheaply.

The revenue model for these firms is based upon receiving commissions or transaction fees when a successful business deal is completed. Online stock trading firms receive either a flat fee for each transaction or a fee based on a sliding scale according to the size of the transaction. Job sites charge the employers a listing fee up front, rather than when the position is filled as traditional "head hunter" firms have done.

The market opportunity for transaction brokers in financial services appears to be large due to the rising interest in receiving financial planning advice and conducting stock transactions online. Demand is also increasing for job placement help that is national and even global in nature and for purchasing travel services quickly and easily online. However, there is some market resistance due to consumers' fear of loss of privacy and loss of control over their personal financial information.

The competitive environment for financial services has become fierce as new entrants, including the traditional brokerage firms that have now entered the online marketspace, have flooded the market. In order to compete effectively, online traders must convince consumers that they have superior security and privacy procedures. The number of job placement sites has also multiplied, and the largest sites such as Monster.com, which have the greatest number of job listings, are the most likely to survive. Consolidation in all of the transaction broker markets is presently occurring, making the market opportunity and competitive environment for new firms looking to enter the marketspace bleak.

The market strategies for such firms typically include expensive marketing campaigns to convince consumers to switch from their current provider or to choose their company over other more well-established competitors, also a daunting task in the present economic environment.

Achieving a competitive advantage is crucial to firms trying to enter these industries. Possible strategies are to lure well-known names in the industry away from their present positions to head a new endeavor, giving the firm instant credibility in the market. Experienced, knowledgeable, and well-known employees may be able to give a new firm a competitive edge.

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New companies may have to start out recruiting a specialized highly skilled staff, with an organizational development plan that is far more advanced than the typical startup. A strong management team will attract investors and convince investors and consumers alike that a new firm has plenty of market-specific knowledge and the experience necessary to implement the business plan.

Difficulty: Difficult

AACSB: Analytical thinking; Written and oral communication

82) Define organizational development and describe its importance in relation to the implementation of a business plan and strategy.

Answer: Organizational development is a plan that describes how the company will organize the work that needs to be accomplished in the business plan or strategy. Typically, work is divided into functional departments, such as production, shipping, marketing, customer support, and finance. Jobs within these functional areas are defined, and then recruitment begins for specific job titles and responsibilities. Typically, in the beginning, generalists who can perform multiple tasks are hired. As the company grows, recruiting becomes more specialized. For instance, at the outset, a business may have one marketing manager. But after two or three years of steady growth, that one marketing position may be broken down into seven separate jobs done by seven individuals.

All firms—new ones in particular—need an organization to efficiently implement their business plans and strategies. Many e-commerce firms and many traditional firms that attempt an e-commerce strategy have failed because they lacked the organizational structures and supportive cultural values required to support new forms of commerce.

Difficulty: Moderate

AACSB: Analytical thinking; Written and oral communication

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83) Define the term *industry structure* and discuss the ways the Internet and e-commerce have changed the five forces that characterize industry structure.

Answer: The term *industry structure* refers to the general business environment in an industry. It is defined by the nature of the players in the industry and their relative bargaining power. It is characterized by five forces: the rivalry among existing competitors, the threat of substitute products, the barriers to entry into the industry, the bargaining power of the suppliers, and the bargaining power of the buyers.

The competitive consequences of technological developments often change the market share positions among the players. New forms of distribution created by new market entrants can completely change the competitive forces in an industry. The Internet, the Web, and e-commerce have affected the structure of different industries in varying, yet often profound ways. In fact, the explosive emergence of the Internet as a major worldwide distribution channel for goods, services, and even for employment is powerfully changing economies, markets, and industry structures. The universal standards of the Internet have lowered the barrier to entry for many industries, bringing a flood of new entrants. Interfirm rivalry is one area where e-commerce technology has had an impact on most industries.

The major consequence is that every business must become globally competitive, even if it manufactures or sells only within a local or regional market. The Internet has changed the scope of competition from local and regional to national and global, pitting firms that had previously been in separate geographic markets against one another. Consumers of all types of goods have access to global price information, putting pressure on many producers and suppliers in some industries to decrease their prices. On the other hand, it has also presented new opportunities for firms to differentiate their products or services from their competitors, driving prices and profits for those firms up.

The overall positive or negative effect of e-commerce technologies on firm profitability depends on the industry involved. In some industries, particularly those involved with information distribution such as newspapers, magazines, software distributors, music and publishing companies, e-commerce has completely changed the ways of doing business. New online challengers have intensified competition and increased the availability of substitute products.

In general, the bargaining power of consumers has grown relative to the providers, driving prices down and challenging the overall profitability of these industries. In other industries, particularly manufacturing, e-commerce has not greatly changed relationships with consumers but relationships with suppliers have been impacted by the aggregation of markets such those created by B2B hubs. Increasingly, manufacturing firms in entire industries have banded together to aggregate purchases, create industrial digital exchanges or marketplaces, and outsource industrial processes in order to obtain better prices from suppliers.

Difficulty: Difficult

AACSB: Analytical thinking; Written and oral communication

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84) Briefly explain three B2B Net marketplace business models besides the exchange business model.

Answer: Three other B2B Net marketplace business models are e-distributor, e-procurement, and industry consortium. E-distributors supply products and services directly to individual businesses. The e-distributor operates much like its B2C counterparts, placing its catalog online and giving purchasing agents access to its product lines in a searchable format. An e-distributor is simply one company seeking to serve many customers. For an e-distributor critical mass involves having enough products and services to attract a large enough customer base.

B2B e-procurement firms create and sell access to digital electronic marketplaces. One type of B2B e-procurement firm is a B2B service provider, which sells business services to other firms. Some common B2B business services are accounting, financial services, human resources management, and printing.

Industry consortia are typically industry-owned vertical marketplaces that serve a specific industry. Industry consortia are usually funded by industry members, who pay for the creation of the site and contribute the initial operating capital. Then they typically charge firms that participate in the consortia transaction and subscription fees.

Difficulty: Moderate

AACSB: Analytical thinking; Written and oral communication

85) Discuss the implications of each of the unique features of e-commerce technology for the overall business environment.

Answer: The ubiquity of e-commerce creates new marketing channels and expands the size of the overall market. It also creates new efficiencies in industry operations and lowers the costs to firms of sales operations. By reducing the cost of information, the Internet provides each of the key players in the value chain for an industry with new opportunities to maximize their positions by lowering costs and/or raising prices. Manufacturers can develop direct relationships with their customers through their own Web sites and bypass the costs of distributors and retailers.

Distributors can develop highly efficient inventory management systems to reduce their costs, and retailers can develop efficient customer relations management systems to strengthen their service to customers. Customers can use the Web to search for the best quality, prices, and delivery methods, thus reducing their transaction costs and the prices they pay for goods.

The global reach of e-commerce lowers barriers to entry and expands the market at the same time. This lowers the costs of both industry and firm operations through production and sales efficiencies. When the operational efficiency of an entire industry increases, it helps the industry to compete with alternative industries and lowers prices and adds value to consumers.

The universal standards of e-commerce lower barriers to entry while at the same time intensifying competition within an industry. Universal standards also reduce the costs for communications and computing, enabling firms to engage in broad-scope strategies.

Communications efficiencies can also enable firms to outsource some primary and secondary activities to specialized, more efficient providers without affecting the consumer. The Internet can also be used to precisely coordinate the steps in the value chain for a firm, thus reducing overall costs.

The richness of e-commerce reduces the strength of powerful distribution channels. It also allows firms to reduce their reliance on traditional sales forces and can enhance post-sales support services.

The interactivity of e-commerce reduces the threat of substitutes through the enhanced use of customization. It also reduces industry and firm costs by enabling differentiation strategies. In their totality, the differentiation features of a product constitute the customer value proposition for a firm. The ability of the Web to personalize the shopping experience and to customize a product to the particular demands of each consumer are the most significant ways in which the interactivity of the Web can be used to differentiate products.

The use of Internet technology to personalize and customize a customer's experience or product reduces threats of substitutions, raises barriers to entry, reduces value chain costs by lessening reliance on sales forces, and enables personalized marketing strategies.

The information density on the Web weakens powerful sales channels ,thus shifting bargaining power to the consumer, while also lowering the costs of obtaining, processing, and distributing information about suppliers and consumers.

The use of social technologies shifts programming and editorial decisions to consumers; creates substitute entertainment products; and energizes a large group of new suppliers.

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E-commerce firms can also leverage the ubiquitous nature, the global reach, the interactivity, and the information density of the Web to differentiate products and services. Firms can make it possible for consumers to purchase a product from home, work, or on the road, anywhere in the world. They can create Web-based experiences with unique interactive content and store and process product information, warranties, and helpful hints to differentiate their product and their firm from the competition.

Difficulty: Difficult

AACSB: Analytical thinking; Written and oral communication

86) Define value chain and explain the difference between a firm value chain, an industry value chain, and a value web.

Answer: A value chain is the set of activities performed that transforms raw inputs into final products and services. A firm value chain is the set of activities a firm engages in to create final products from raw inputs. The key steps and support activities in a firm's value chain are inbound logistics, operations, outbound logistics, sales and marketing, and after sales service. With an industry value chain, the chain broadens to include six generic players: suppliers, manufacturers, transporters, distributors, retailers, and customers. A value web coordinates a firm's suppliers with its own production needs using an Internet-based supply chain management system. It is a networked transbusiness system that coordinates the value chains of several firms.

Difficulty: Moderate

AACSB: Analytical thinking; Written and oral communication

1) Packet switching requires a dedicated circuit.

Answer: FALSE

Difficulty: Easy

AACSB: Information technology

2) Transmission Control Protocol is the protocol that provides the Internet addressing scheme.

Answer: FALSE

Difficulty: Moderate

AACSB: Information technology

3) IPv6 provides for 64-bit IP addresses.

Answer: FALSE

Difficulty: Moderate

AACSB: Information technology

4) Tablet computers rely on the Internet cloud for processing and storage.

Answer: TRUE

Difficulty: Moderate

AACSB: Information technology

5) Google Apps is an example of cloud computing.

Answer: TRUE

Difficulty: Moderate

AACSB: Information technology

6) HTML is the Internet protocol used to transfer Web pages.

Answer: FALSE

Difficulty: Easy

AACSB: Information technology

7) The major hubs in the United States where the Internet backbone intersects with regional and local networks are now commonly referred to as Internet Exchange Points (IXPs).

Answer: TRUE

Difficulty: Moderate

AACSB: Information technology

8) T1 and T3 refer to international telephone standards for digital communication.

Answer: TRUE

Difficulty: Easy

AACSB: Information technology

9) One of Internet2's projects is a nationwide 100 gigabit-per-second network.

Answer: TRUE

Difficulty: Moderate

AACSB: Information technology

10) WLAN-based Internet access derives from the same technological foundations as telephone-based wireless Internet access.

Answer: FALSE

Difficulty: Moderate

AACSB: Use of IT

11) Every device connecting to the Internet must have a unique address.

Answer: TRUE

Difficulty: Moderate

AACSB: Information technology

12) XML is used to format the structure and style of a Web page.

Answer: FALSE

Difficulty: Moderate

AACSB: Information technology

13) FTP is a protocol used to transfer files to and from a server.

Answer: TRUE

Difficulty: Moderate

AACSB: Information technology

14) Internet access providers typically provide faster download speeds than upload speeds to consumers.

Answer: TRUE

Difficulty: Moderate

AACSB: Information technology

15) RSS is an XML format that allows users to have digital content automatically sent to their computers over the Internet.

Answer: TRUE

Difficulty: Easy

AACSB: Information technology

16) During which period of time did the Institutionalization phase of Internet development take place?

A) 1950-1960

B) 1961-1974

C) 1975-1995

D) 1995-through the present

Answer: C

Difficulty: Moderate

AACSB: Application of knowledge

17) Which of the following occurred during the Commercialization phase of Internet development?

- A) The fundamental building blocks of the Internet were realized in actual hardware and software.
- B) Large mainframes on different college campuses were linked.
- C) The Domain Name System was introduced.
- D) NSF privatized the operation of the Internet's backbone.

Answer: D

Difficulty: Difficult

AACSB: Application of knowledge

18) During which phase of the development of the Internet was ARPANET invented?

- A) Commercialization phase
- B) Institutional phase
- C) Innovation phase
- D) Consolidation phase

Answer: B

Difficulty: Difficult

AACSB: Application of knowledge

19) Which of the following is *not* one of the basic technological foundations of the Internet?

- A) client/server computing
- B) Tracert
- C) TCP/IP communications protocol
- D) packet-switching hardware

Answer: B

Difficulty: Moderate

AACSB: Information technology

20) The process of slicing digital messages into parcels, sending them along different communication paths as they become available, and reassembling them at the destination point is called:

- A) routing.
- B) the Transmission Control Protocol.
- C) packet switching.
- D) the File Transfer Protocol.

Answer: C

Difficulty: Moderate

AACSB: Information technology

21) Which of the following is the core communications protocol for the Internet?

- A) Telnet
- B) FTP
- C) TCP/IP
- D) SSL

Answer: C

Difficulty: Moderate

AACSB: Information technology

22) The Transport Layer of TCP/IP is responsible for which of the following?

- A) placing packets on and receiving them from the network medium
- B) addressing, packaging, and routing messages
- C) providing communication with the application by acknowledging and sequencing the packets to and from the application
- D) providing a variety of applications with the ability to access the services of the lower layers

Answer: C

Difficulty: Difficult

AACSB: Information technology

23) The Internet Layer of TCP/IP is responsible for which of the following?

- A) placing packets on and receiving them from the network medium
- B) addressing, packaging, and routing messages
- C) providing communication with the application by acknowledging and sequencing the packets to and from the application
- D) providing a variety of applications with the ability to access the services of the lower layers

Answer: B

Difficulty: Difficult

AACSB: Information technology

24) Which of the following allows users to communicate visually and aurally in real-time, and uses high-resolution monitors to simulate the presence of participants?

- A) telepresence
- B) videoconferencing
- C) VOIP
- D) IP telephony

Answer: A

Difficulty: Easy

AACSB: Information technology

25) An IPv4 address is expressed as a:

- A) 32-bit number that appears as a series of four separate numbers separated by semicolons.
- B) 64-bit number that appears as a series of four separate numbers separated by semicolons.
- C) 64-bit number that appears as a series of four separate numbers separated by periods.
- D) 32-bit number that appears as a series of four separate numbers separated by periods.

Answer: D

Difficulty: Moderate

AACSB: Information technology

26) The natural language convention used to represent IP addresses is called the:

- A) uniform resource locator system.
- B) Internet protocol addressing schema.
- C) domain name system.
- D) assigned numbers and names (ANN) system.

Answer: C

Difficulty: Moderate

AACSB: Information technology

27) The addresses used by browsers to identify the location of content on the Web are called:

- A) domain names.
- B) uniform resource locators.
- C) IP addresses.
- D) file paths.

Answer: B

Difficulty: Moderate

AACSB: Information technology

28) Which of the following organizations coordinates the Internet's systems of unique identifiers, such as IP addresses and top-level domain systems?

- A) IETF
- B) IAB
- C) W3C
- D) ICANN

Answer: C

Difficulty: Moderate

AACSB: Application of knowledge

29) Which of the following is *not* an advantage of client/server computing over centralized mainframe computing?

- A) It is easy to expand capacity by adding servers and clients.
- B) Each client added to the network increases the network's overall capacity and transmission speeds.
- C) Client/server networks are less vulnerable, in part because the processing load is balanced over many powerful smaller computers rather than concentrated in a single huge computer.
- D) There is less risk that a system will completely malfunction because backup or mirror servers can pick up the slack if one server goes down.

Answer: B

Difficulty: Difficult

AACSB: Information technology

30) \_\_\_\_\_ is a model of computing in which firms and individuals obtain computing power and software applications over the Internet, rather than purchasing and installing it on their own computers.

A) Client/server computing

B) P2P computing

C) Mobile computing

D) Cloud computing

Answer: D

Difficulty: Difficult

AACSB: Information technology

31) Which of the following protocols is used to send mail to a server?

A) SMTP

B) FTP

C) HTTP

D) SSL

Answer: A

Difficulty: Moderate

AACSB: Information technology

32) Where does TSL operate within TCP/IP?

A) between the Internet Layer and the Transport Layer

B) between the Transport Layer and the Application Layer

C) between the Network Interface Layer and the Transport Layer

D) between the Internet Layer and the Application Layer

Answer: B

Difficulty: Difficult

AACSB: Information technology

33) A(n) \_\_\_\_\_ is an audio presentation stored as an audio file and posted to the Web for users to download.

A) podcast

B) RSS subscription

C) weblog

D) widget

Answer: A

Difficulty: Easy

AACSB: Information technology

34) \_\_\_\_\_ is one of the original Internet services and is used to transfer files from a server computer to a client computer and vice versa.

- A) SMTP
- B) FTP
- C) HTTP
- D) SSL

Answer: B

Difficulty: Moderate

AACSB: Information technology

35) \_\_\_\_\_ is a utility program that allows you to check the connection between your client and a TCP/IP network.

- A) Ping
- B) Telnet
- C) Tracert
- D) Finger

Answer: A

Difficulty: Moderate

AACSB: Information technology

36) \_\_\_\_\_ is a unique virtual laboratory for exploring future internets at scale, to promote innovations in network science and technologies.

- A) Internet of Things
- B) Internet2
- C) ARPANET
- D) GENI

Answer: D

Difficulty: Difficult

AACSB: Application of knowledge

37) TCP/IP operates in which layer of Internet architecture?

- A) Network Technology Substrate layer
- B) Middleware Services layer
- C) Transport Services and Representation Standards layer
- D) Applications layer

Answer: C

Difficulty: Moderate

AACSB: Information technology

38) An Internet-enabled media player would run in which layer of Internet architecture?

- A) Network Technology Substrate layer
- B) Middleware Services layer
- C) Transport Services and Representation Standards layer
- D) Applications layer

Answer: D

Difficulty: Moderate

AACSB: Information technology

39) The layer of Internet architecture that ties the applications to the communications network and includes such services as security and authentication is called the:

- A) Network Technology Substrate layer.
- B) Middleware Services layer.
- C) Transport Services and Representation Standards layer.
- D) Applications layer.

Answer: B

Difficulty: Moderate

AACSB: Information technology

40) The backbone of the Internet is formed by:

- A) Internet Exchange Points (IXPs).
- B) Network Service Providers (NSPs).
- C) Internet Service Providers (ISPs).
- D) Metropolitan Area Exchanges (MAEs).

Answer: B

Difficulty: Moderate

AACSB: Information technology

41) When talking about the physical elements of the Internet, the term *redundancy* refers to:

- A) transmitting multiple copies of a single packet to safeguard against data loss.
- B) the use of tiered high-speed switching computers to connect the backbone to regional and local networks.
- C) delays in messages caused by the uneven flow of information through the network.
- D) multiple duplicate devices and paths in a network built so that data can be rerouted if a breakdown occurs.

Answer: D

Difficulty: Moderate

AACSB: Information technology

42) Which source of e-commerce revenues has grown from nearly zero prior to 2007 to over \$38 billion in 2013?

- A) search engine advertising
- B) mobile retail purchases
- C) streaming video subscriptions
- D) social network advertising

Answer: B

Difficulty: Moderate

AACSB: Application of knowledge

43) Local area networks that operate within a single organization that leases access to the Web directly from regional and national carriers are called:

- A) wide area networks.
- B) extranets.
- C) campus area networks.
- D) private exchanges.

Answer: C

Difficulty: Moderate

AACSB: Information technology

44) The \_\_\_\_\_ is a consortium of corporations, government agencies, and nonprofit organizations that monitors Internet policies and practices.

- A) Internet Engineering Steering Group (IESG)
- B) World Wide Web Consortium (W3C)
- C) Internet Engineering Task Force (IETF)
- D) Internet Society (ISOC)

Answer: D

Difficulty: Moderate

AACSB: Application of knowledge

45) The \_\_\_\_\_ helps define the overall structure of the Internet.

- A) IAB
- B) IESG
- C) W3C
- D) ITU

Answer: A

Difficulty: Moderate

AACSB: Application of knowledge

46) Which of the following is *not* a limitation of the current Internet?

- A) the continued reliance on cables and wires for connectivity
- B) limited bandwidth, which causes congestion and cannot adequately handle video and voice traffic
- C) architectural restrictions, which stipulate that numerous requests for the same file must each be answered individually, slowing network performance
- D) the difficulty in expanding capacity by adding servers and clients

Answer: D

Difficulty: Difficult

AACSB: Information technology

47) Which of the following is *not* true about the mobile platform?

- A) Most smartphones use Microsoft's operating system, Windows Mobile.
- B) The number of cell phones worldwide exceeds the number of PCs.
- C) About a third of the world's cell phones are smartphones.
- D) Unlike PCs, smartphones do not need fans.

Answer: A

Difficulty: Difficult

AACSB: Application of knowledge

48) Which of the following statements about fiber-optic cable is *not* true?

- A) It consists of twelve or sixteen strands of glass.
- B) It is thinner and lighter than coaxial or twisted pair cable.
- C) It enables better data security than coaxial cable.
- D) Telecommunications firms have made substantial investments in cross-country fiber optic systems in the last decade.

Answer: A

Difficulty: Moderate

AACSB: Information technology

49) The model of computing in which firms and individuals obtain computing power and software over the Internet is called \_\_\_\_\_ computing.

- A) mobile
- B) mainframe
- C) client/server
- D) cloud

Answer: D

Difficulty: Easy

AACSB: Information technology

50) Which of the following technologies has enabled the Internet to grow exponentially to support millions of users, without overloading the network architecture?

- A) fiber optics
- B) Wi-Fi
- C) IPv6
- D) client/server networking

Answer: D

Difficulty: Moderate

AACSB: Information technology

51) The major technologies used with wireless local area networks are:

- A) Wi-Fi and Bluetooth.
- B) Wi-Fi and WiMax.
- C) Bluetooth and 3G.
- D) WiMax and 3G.

Answer: A

Difficulty: Moderate

AACSB: Information technology

52) Akamai offers all of the following services *except*:

- A) instant messaging.
- B) targeted advertising.
- C) security services.
- D) global traffic management.

Answer: A

Difficulty: Moderate

AACSB: Application of knowledge

53) Which of the following is a high-speed, medium-range, broadband wireless metropolitan area network?

- A) Wi-Fi
- B) WiMAX
- C) Bluetooth
- D) ZigBee

Answer: B

Difficulty: Difficult

AACSB: Information technology

54) Siri is a type of:

- A) intelligent personal assistant.
- B) widget.
- C) gadget.
- D) social network.

Answer: A

Difficulty: Moderate

AACSB: Information technology

55) The first Web browser to make it possible to view documents on the Web with colored background, images, and animations was:

- A) Netscape Navigator.
- B) Mosaic.
- C) Mozilla.
- D) Internet Explorer.

Answer: B

Difficulty: Moderate

AACSB: Information technology

56) In the address **http://www.company.com/clients.html**, which of the following is the top-level domain?

- A) .com
- B) company.com
- C) www
- D) http

Answer: A

Difficulty: Moderate

AACSB: Information technology

57) You could expect to find all of the following services in a Web server software package *except*:

- A) security services.
- B) FTP.
- C) data capture.
- D) an RSS aggregator.

Answer: D

Difficulty: Moderate

AACSB: Information technology

58) Which of the following is currently the most popular Web browser?

- A) Internet Explorer
- B) Netscape
- C) Chrome
- D) Firefox

Answer: A

Difficulty: Moderate

AACSB: Information technology

59) The concept behind document formatting had its roots in which of the following?

- A) XML
- B) SGML
- C) HTML
- D) GML

Answer: D

Difficulty: Moderate

AACSB: Information technology

60) Which of the following is a Web application that enables Internet users to communicate with each other, although not in real time?

- A) online chat
- B) online forum
- C) IM
- D) VoIP

Answer: B

Difficulty: Easy

AACSB: Information technology

61) Which of the following is a Web 2.0 service or application?

- A) wikis
- B) e-mail
- C) IM
- D) online forums

Answer: A

Difficulty: Moderate

AACSB: Information technology

62) A(n) \_\_\_\_\_ is a Web application that allows users to easily add and edit content on a Web page.

- A) wiki
- B) podcast
- C) blog
- D) RSS feed

Answer: A

Difficulty: Moderate

AACSB: Information technology

63) The protocol that enables the transmission of voice and other forms of audio communication over the Internet is called:

- A) VoIP.
- B) IPTP.
- C) VTP.
- D) IP.

Answer: A

Difficulty: Moderate

AACSB: Information technology

64) All of the following are characteristics of HTML5 *except*:

- A) a video element that replaces plug-ins such as Flash, QuickTime, and RealPlayer.
- B) use of CSS3.
- C) ability to access built-in functionality of mobile devices, such as GPS and swiping.
- D) support for digital rights management.

Answer: D

Difficulty: Moderate

AACSB: Information technology

65) All of the following are true about iPhone apps *except*:

- A) They are distributed through Apple's App Store.
- B) They are cross-platform, open-source applications.
- C) They were estimated to generate over \$1 billion in 2013.
- D) Apple's goal of offering apps is to increase retail sales of iPhones, iPads, and iPods.

Answer: B

Difficulty: Moderate

AACSB: Information technology

66) Also known as the Industrial Internet, the \_\_\_\_\_ describes the use of Internet technologies and networking to enable the multitudes of nontraditional devices that are equipped with data-generating sensors to connect to the Internet.

Answer: Internet of Things

Difficulty: Moderate

AACSB: Information technology

67) Specialized computers that interconnect the thousands of computers that make up the Internet in order to transmit message parcels along available communication paths and on to their destinations are called \_\_\_\_\_.

Answer: routers

Difficulty: Moderate

AACSB: Information technology

68) A set of rules for transferring data is called a(n) \_\_\_\_\_.

Answer: protocol

Difficulty: Moderate

AACSB: Information technology

69) TCP/IP is divided into four separate \_\_\_\_\_, each handling a different aspect of the communication problem.

Answer: layers

Difficulty: Easy

AACSB: Information technology

70) \_\_\_\_\_ are central directories that list all domain names currently in use for specific domains.

Answer: Root servers

Difficulty: Difficult

AACSB: Information technology

71) A small application that you embed in a Web page in order to include content and functionality from a different Web site is called a(n) \_\_\_\_\_.

Answer: widget

Difficulty: Moderate

AACSB: Information technology

72) \_\_\_\_\_ is a utility program that allows you to track the path of a message you send from your client to a remote computer on the Internet.

Answer: Tracert

Difficulty: Moderate

AACSB: Information technology

73) A TCP/IP network located within a single organization for the purposes of communication and information processing is called a(n) \_\_\_\_\_.

Answer: intranet

Difficulty: Moderate

AACSB: Information technology

74) \_\_\_\_\_ refers to delays in messages caused by the uneven flow of information packets through the network.

Answer: Latency

Difficulty: Moderate

AACSB: Information technology

75) \_\_\_\_\_ is a way of formatting pages with embedded links that connect documents to one another and that also link pages to other objects.

Answer: Hypertext

Difficulty: Moderate

AACSB: Information technology

76) An iPad is an example of a(n) \_\_\_\_\_ computer.

Answer: tablet

Difficulty: Moderate

AACSB: Information technology

77) \_\_\_\_\_ software refers to the software that enables a computer to deliver Web pages written in HTML to client computers on a network that request this service by sending an HTTP request.

Answer: Web server

Difficulty: Moderate

AACSB: Information technology

78) Computing devices attached to the Internet that are capable of making HTTP requests and displaying HTML pages are referred to as \_\_\_\_\_.

Answer: Web clients

Difficulty: Moderate

AACSB: Information technology

79) Outside of e-mail, using a(n) \_\_\_\_\_ is the most common online daily activity.

Answer: search engine

Difficulty: Moderate

AACSB: Information technology

80) A(n) \_\_\_\_\_ is a personal Web page of chronological entries created by an individual or corporation to communicate with readers.

Answer: blog

Difficulty: Easy

AACSB: Information technology

81) Explain each of the three important concepts behind the Federal Networking Council's definition of the term *Internet*. Explain how each of these technologies contributes to the functioning of the Internet today.

Answer: The three important concepts in the Federal Networking Council's definition of the Internet are packet switching, the TCP/IP communications protocol, and client/server computing.

Packet switching is a method of slicing digital messages up into parcels that are sent along different communications paths as they become available. The packets travel from router computer to router computer and are then reassembled at their destination point. These routers are special purpose computers that interconnect the thousands of computer networks that make up the Internet. Since this method does not require a dedicated circuit, it makes use of any available spare capacity on any one of several hundred circuits enabling nearly full use of available communication lines and capacity.

Transmission Control Protocol/Internet Protocol (TCP/IP) is the universally agreed upon method for breaking the messages up, routing them to their destination, and reassembling them. The TCP protocol, or set of rules, specifies how messages should be formatted, ordered, compressed, and error-checked. It also stipulates which method devices the network will use to indicate that they have stopped sending and/or receiving messages and sometimes specifies the transmission speed as well. The IP protocol provides the addressing scheme for the Internet. Each computer connected to the Internet must be assigned an Internet Protocol address so that it can send and receive TCP packets. At present, each time home users sign on to the Internet they are temporarily assigned one of these 32-bit numbers by their ISP.

Client/server computing involves very powerful personal computers that are connected together in a network along with one or more server computers. These client computers can display rich graphics, store large files, and process graphic and sound files. The server computers are specifically allocated to common functions that all of the client computers need such as storing files and supplying software applications, and utility programs.

Difficulty: Difficult

AACSB: Analytical thinking; Information technology; Written and oral communication

82) Identify and describe the types of ISP service, along with the Internet connection methods, in use today.

Answer: There are two types of ISP service: narrowband and broadband. Narrowband service is the traditional telephone modem connection now operating at 56.6 Kbps (although the actual throughput hovers around 30 Kbps due to line noise that causes extensive resending of packets). This used to be the most common form of connection worldwide but has been replaced by broadband connections in most of the United States, Europe, and Asia.

Broadband service is based on DSL, cable modem, telephone (T1 and T3 lines), and satellite technologies. Broadband—in the context of Internet service—refers to any communication technology that permits clients to play streaming audio and video files at acceptable speeds—generally anything above 100 Kbps.

Digital Subscriber Line (DSL) service is a telephone technology for delivering high-speed access to the Internet through ordinary telephone lines found in a home or business. Cable modem refers to a cable television technology that piggybacks digital access to the Internet using the same analog or digital video cable providing television signals to a home. T1 and T3 are international telephone standards for digital communication. These are leased, dedicated, guaranteed lines suitable for corporations, government agencies, and businesses such as ISPs requiring high-speed guaranteed service levels. Additionally, some satellite companies offer broadband high-speed digital downloading of Internet content to homes and offices that deploy 18" satellite antennas.

Difficulty: Easy

AACSB: Analytical thinking; Information technology; Written and oral communication

83) What is augmented reality? Describe how augmented reality technologies could be used in e-commerce.

Answer: Augmented reality refers to content (text, video, and sound) that is superimposed over live images in order to enrich the user's experience. For example, Google Glass is an augmented reality implemented via wrap-around glasses that stream information to an area in the glass lenses above the eye. Businesses could use augmented reality for advertising location-based products and services in much the same way that mobile e-commerce currently does. For example, if you are walking down a street, your augmented reality glasses can let you know what deals are being offered at coffee shops or if a book you are looking for is discounted in the store you are passing. A content-provider service that you subscribe to might tell you the history of the church you are looking at.

Difficulty: Moderate

AACSB: Analytical thinking; Information technology; Written and oral communication

84) Briefly describe the development of the World Wide Web including the key players.

Answer: The Web was invented between 1989 and 1991 when Dr. Tim Berners-Lee and his associates at CERN Laboratories built on the ideas of several earlier researchers and developed the initial versions of HTML, HTTP, a Web server, and a Web browser, the four essential components of the Web. Information being shared on the Web remained text-based until Marc Andreessen and others at NCSA (National Center for Supercomputing Applications) created a Web browser with a graphical user interface. This made it possible to view documents on the Web that included colored backgrounds, images, and primitive animations. In 1994 Andreessen and Jim Clark founded Netscape, which created the first commercial browser. In 1995 Microsoft released the first version of Internet Explorer and the Web began to take off.

Difficulty: Moderate

AACSB: Analytical thinking; Information technology; Written and oral communication

85) You are browsing the Web on your tablet computer. Describe the path that the Web page data takes to get from its storage point on a distant computer to your tablet.

Answer: The Web page information starts from where it is hosted on a Web server and travels through the host company's network to the Internet. On the Internet, the data will pass through the ISP's network to regional and national backbones, and finally to the network of the ISP that is serving my personal network, and through an access point or hot spot to be delivered wirelessly to my tablet.

Difficulty: Moderate

AACSB: Analytical thinking; Information technology; Written and oral communication

86) Explain how the Internet and the Web make e-commerce possible. Briefly discuss at least six features or services that support e-commerce.

Answer: The Internet and the Web have made commerce possible because they brought about an extraordinary expansion of digital services to millions of amateur computer users. The Web makes nearly all of the elements of rich human expression including color, text, images, photos, animations, sound, and video available, creating a unique environment in which to establish a commercial marketplace. Many of the Web's services and features support e-commerce, including e-mail, search engines, instant messaging (IM), chat, streaming media, and cookies.

E-mail, for example, can be used as a very effective marketing tool. E-commerce sites can buy e-mail lists from various sources and collate them with lists of their current customers to create a targeted advertising message that can be quickly and economically delivered and will produce a creditable response.

Search engines have also become a crucial tool on e-commerce sites, providing a method for customers to quickly locate the product category or a specific product they are looking for.

Instant messaging has been added to some e-commerce Web sites as a method of accessing customer support personnel.

Chat is a common feature of many Web sites, particularly those that focus on building a community of like-minded users. Chat enables a group of Web site visitors to bond and network and keeps visitors coming back to a site.

Although the low bandwidth available during the early days of e-commerce limited the use of audio and video files, today streaming media is now common on Web sites. Streaming media enables live Web video, music, video, and other large-bandwidth files to be sent to users in a variety of ways that enable the user to play back the files. Web advertisers increasingly use video to attract viewers. Streaming audio and video segments used in Web ads and news stories are perhaps the most frequently used streaming services.

Finally, cookies are a very important tool used by marketers to collect and store information about a user. These small text files are sent to the user's computer so that information from the site will load more quickly the next time they visit. More importantly from the e-tailer's perspective, cookies can retain information about the customer such as the number of pages visited, products examined, and other detailed information about a customer's behavior. Cookies enable sites to recognize returning visitors and target specific customers with special offers and marketing messages.

Difficulty: Difficult

AACSB: Analytical thinking; Information technology; Written and oral communication

1) The systems development life cycle methodology is useful when creating an e-commerce Web site.

Answer: TRUE

Difficulty: Moderate

AACSB: Information technology

2) One of the most important challenges in developing an e-commerce presence is understanding that the technology must drive the business.

Answer: FALSE

Difficulty: Moderate

AACSB: Application of knowledge

3) Using prebuilt templates is typically one of the most cost-effective choices when building a Web site.

Answer: TRUE

Difficulty: Easy

AACSB: Information technology

4) The annual maintenance cost for a Web site is likely to be as high as its development cost.

Answer: TRUE

Difficulty: Moderate

AACSB: Information technology

5) In a two-tier architecture, a Web server is linked to one middle-tier layer that typically includes a series of application servers, as well as to another back-end layer.

Answer: FALSE

Difficulty: Difficult

AACSB: Information technology

6) Apache Web server software is based on Microsoft's Windows operating system.

Answer: FALSE

Difficulty: Moderate

AACSB: Information technology

7) The Web server software used does not significantly impact how a Web site's Web pages look on users' computers.

Answer: TRUE

Difficulty: Moderate

AACSB: Information technology

8) Prior to the development of e-commerce, Web sites primarily delivered static content.

Answer: TRUE

Difficulty: Moderate

AACSB: Information technology

9) Dynamic page generation makes market segmentation easier.

Answer: TRUE

Difficulty: Moderate

AACSB: Application of knowledge

10) A list server is an application server used to provide a database for product descriptions and prices.

Answer: FALSE

Difficulty: Moderate

AACSB: Information technology

11) Upgrading a server from a single processor to multiple processors is an example of scaling a site horizontally.

Answer: FALSE

Difficulty: Difficult

AACSB: Information technology

12) Storing HTML pages in RAM rather than on a server's hard drive is an inexpensive way to fine-tune the processing architecture of a Web site.

Answer: TRUE

Difficulty: Moderate

AACSB: Information technology

13) A "native" app is one designed to specifically operate using a mobile device's hardware and operating system.

Answer: TRUE

Difficulty: Moderate

AACSB: Information technology

14) Accessibility rules help to ensure that low-bandwidth users can access your Web site.

Answer: FALSE

Difficulty: Moderate

AACSB: Application of knowledge

15) Mobile Web apps are typically built using HTML5 and Java.

Answer: TRUE

Difficulty: Moderate

AACSB: Information technology

- 16) What are the two most important management challenges in building a successful e-commerce presence?
- A) developing a clear understanding of business objectives and knowing how to choose the right technology to achieve those objectives
  - B) having an accurate understanding of your business environment and an achievable business plan
  - C) building a team with the right skill sets and closely managing the development process
  - D) identifying the key components of your business plan and selecting the right software, hardware, and infrastructure for your site

Answer: A

Difficulty: Difficult

AACSB: Application of knowledge

- 17) In order from beginning to end, the major steps in the SDLC, are:
- A) systems analysis/planning; systems design; building the system; testing; and implementation.
  - B) systems design; testing; building the system; and implementation.
  - C) systems analysis/planning; systems design; building the system; implementation; and testing.
  - D) systems analysis/planning; implementation; building the system; and testing.

Answer: A

Difficulty: Difficult

AACSB: Application of knowledge

- 18) \_\_\_\_\_ are the types of information systems capabilities needed to meet business objectives.

- A) Information requirements
- B) System functionalities
- C) System design specifications
- D) Physical design specifications

Answer: B

Difficulty: Moderate

AACSB: Application of knowledge

- 19) Which of the following basic system functionalities is used to display goods on a Web site?

- A) product database
- B) digital catalog
- C) shopping cart system
- D) customer database system

Answer: B

Difficulty: Moderate

AACSB: Information technology

20) Which system functionality must your Web site have in order to be able to personalize or customize a product for a client?

- A) an ad server
- B) a site tracking and reporting system
- C) an inventory management system
- D) customer on-site tracking

Answer: D

Difficulty: Difficult

AACSB: Information technology

21) A system design has two main components:

- A) a logical design and a physical design.
- B) a behavioral design and a technological design.
- C) business objectives and technology requirements.
- D) front-end systems and back-end systems.

Answer: A

Difficulty: Difficult

AACSB: Information technology

22) Which of the following helps you understand the marketing effectiveness of your e-commerce site?

- A) shopping cart
- B) product database
- C) site tracking and reporting system
- D) inventory management system

Answer: C

Difficulty: Difficult

AACSB: Information technology

23) Which of the following is *not* one of the basic business objectives for an e-commerce site?

- A) display goods
- B) execute a transaction
- C) provide production and supplier links
- D) optimize system architecture

Answer: D

Difficulty: Moderate

AACSB: Information technology

24) All of the following are basic information requirements for a product database *except*:

- A) product descriptions.
- B) stock numbers.
- C) customer ID numbers.
- D) inventory levels.

Answer: C

Difficulty: Easy

AACSB: Information technology

25) Which of the following typically includes a data flow diagram to describe the flow of information for an e-commerce site?

- A) physical design
- B) logical design
- C) testing plan
- D) co-location plan

Answer: B

Difficulty: Moderate

AACSB: Information technology

26) Which of the following details the actual hardware components to be used in a system?

- A) architecture plan
- B) system functionalities plan
- C) logical design
- D) physical design

Answer: D

Difficulty: Moderate

AACSB: Information technology

27) \_\_\_\_\_ verifies that the business objectives of the system as originally conceived are in fact working.

- A) System testing
- B) Acceptance testing
- C) Unit testing
- D) Implementation testing

Answer: B

Difficulty: Moderate

AACSB: Information technology

28) \_\_\_\_\_ involves testing a site program's modules one at a time.

- A) System testing
- B) Acceptance testing
- C) Unit testing
- D) Implementation testing

Answer: C

Difficulty: Moderate

AACSB: Information technology

29) Most of the time required to maintain an e-commerce site is spent on:

- A) debugging code.
- B) responding to emergency situations.
- C) general administration and making changes and enhancements to the system.
- D) changes in reports, data files, and links to backend databases.

Answer: C

Difficulty: Moderate

AACSB: Information technology

30) An e-commerce site that cost \$25,000 to develop is likely to require a yearly maintenance budget of approximately:

- A) \$5,000.
- B) \$10,000.
- C) \$25,000.
- D) \$50,000.

Answer: C

Difficulty: Moderate

AACSB: Application of knowledge

31) All of the following are simple steps for optimizing Web page content that can reduce response times *except*:

- A) reducing unnecessary HTML comments.
- B) segmenting computer servers to perform dedicated functions.
- C) using more efficient graphics.
- D) avoiding unnecessary links to other pages on the site.

Answer: B

Difficulty: Moderate

AACSB: Information technology

32) In a SWOT analysis, you describe all of the following *except*:

- A) the business's strengths.
- B) the business's weaknesses.
- C) the business's opportunities.
- D) the business's technology.

Answer: D

Difficulty: Moderate

AACSB: Information technology

33) Offline media is typically used for all of the following marketing activities *except*:

- A) education.
- B) exposure.
- C) conversation.
- D) branding.

Answer: C

Difficulty: Difficult

AACSB: Application of knowledge

34) All of the following might be part of a Web site's middle-tier layer *except*:

- A) a database server.
- B) an ad server.
- C) legacy corporate applications.
- D) a mail server.

Answer: C

Difficulty: Moderate

AACSB: Information technology

35) The leading Web server software is:

- A) Apache.
- B) Microsoft Internet Information Server.
- C) Linux.
- D) Google Enterprise Server.

Answer: A

Difficulty: Moderate

AACSB: Information technology

36) All of the following are basic functionality provided by Web servers *except*:

- A) site management tools.
- B) data capture tools.
- C) security services.
- D) a shopping cart.

Answer: D

Difficulty: Moderate

AACSB: Information technology

37) Which of the following is used to process certificates and private/public key information?

- A) HTTP
- B) SSL
- C) FTP
- D) data capture tools

Answer: B

Difficulty: Difficult

AACSB: Information technology

38) Which of the following would you use to identify orphan files?

- A) HTTP
- B) FTP
- C) data capture tools
- D) site management tools

Answer: D

Difficulty: Moderate

AACSB: Information technology

39) Which of the following is an example of a CMS?

- A) Apache
- B) WordPress
- C) Oracle
- D) WebTrends Analytics

Answer: B

Difficulty: Moderate

AACSB: Information technology

40) Advantages of dynamic page generation include all of the following *except*:

- A) lowered menu costs.
- B) market segmentation.
- C) nearly cost-free price discrimination.
- D) client-side execution of programming.

Answer: D

Difficulty: Difficult

AACSB: Information technology

41) Which of the following *cannot* be used to retrieve objects from a database?

- A) CGI
- B) ASP
- C) JSP
- D) HTML

Answer: D

Difficulty: Moderate

AACSB: Information technology

42) Which of the following types of servers monitors and controls access to a main Web server and implements firewall protection?

- A) proxy server
- B) list server
- C) groupware server
- D) mail server

Answer: A

Difficulty: Moderate

AACSB: Information technology

43) Which of the following technologies could you use to place the content of your Web site in a database so that you can then dynamically generate requests for pages?

- A) Apache web server
- B) proxy server
- C) shopping cart
- D) CMS

Answer: D

Difficulty: Moderate

AACSB: Information technology

44) Which of the following is *not* a type of application server?

- A) proxy server
- B) mail server
- C) ad server
- D) FTP server

Answer: D

Difficulty: Moderate

AACSB: Information technology

45) All of the following are basic functionality provided by e-commerce merchant server software *except*:

- A) a product catalog.
- B) marketing software.
- C) a shopping cart.
- D) credit card processing.

Answer: B

Difficulty: Moderate

AACSB: Information technology

46) Which of the following is *not* one of the main factors in Web site optimization?

- A) page content
- B) page generation
- C) page delivery
- D) page stickiness

Answer: D

Difficulty: Moderate

AACSB: Information technology

47) An e-commerce Web site that processes orders requires, at minimum, a \_\_\_\_\_ system architecture.

- A) single-tier
- B) two-tier
- C) three-tier
- D) multi-tier

Answer: B

Difficulty: Moderate

AACSB: Information technology

48) All of the following are Web site design features that annoy customers *except*:

- A) slow-loading pages.
- B) pop-under ads.
- C) splash pages.
- D) redundant navigation.

Answer: D

Difficulty: Moderate

AACSB: Analytic skills

49) Which of the following is *not* an open source software tool?

- A) WebSphere
- B) Apache
- C) MySQL
- D) PHP

Answer: A

Difficulty: Moderate

AACSB: Information technology

50) The term *stateless* refers to the fact that:

- A) no one government entity controls the Internet.
- B) the server does not have to maintain an ongoing dedicated interaction with the client computer.
- C) system performance degrades as more simultaneous users require service.
- D) Web servers may maintain multiple instances of server software to handle requests.

Answer: B

Difficulty: Moderate

AACSB: Information technology

51) The structure of a market is described in terms of all of the following *except*:

- A) direct competitors.
- B) suppliers.
- C) customers.
- D) substitute products.

Answer: C

Difficulty: Moderate

AACSB: Application of knowledge

52) Which of the following types of sites typically tends to have high to very high page views (hits)?

- A) Web services
- B) customer self-service
- C) trading
- D) publishing/subscription

Answer: D

Difficulty: Difficult

AACSB: Application of knowledge

53) Which of the following types of sites typically needs a high percentage of secure pages?

- A) Web services
- B) customer self-service
- C) trading
- D) publishing/subscription

Answer: C

Difficulty: Difficult

AACSB: Application of knowledge

54) Which of the following is *not* a main factor in determining overall demand for an e-commerce site?

- A) static file sizes
- B) number of items in inventory
- C) security required
- D) type of content

Answer: A

Difficulty: Difficult

AACSB: Information technology

55) The cost of hardware, software, and telecommunications services needed to build a Web site have \_\_\_\_\_ over the last decade.

- A) increased dramatically
- B) increased moderately
- C) decreased dramatically
- D) decreased slightly

Answer: C

Difficulty: Moderate

AACSB: Application of knowledge

56) Which of the following is the final stage suggested for a six-phase plan to develop an e-commerce presence?

- A) mobile plan
- B) maintenance
- C) testing plan
- D) Twitter plan

Answer: A

Difficulty: Moderate

AACSB: Application of knowledge

57) Which of the following is *not* an example of one of the four kinds of e-commerce presence?

- A) e-mail list
- B) customer management system
- C) Twitter feed
- D) print ad that refers to a Web site

Answer: B

Difficulty: Moderate

AACSB: Application of knowledge

58) All of the following are steps one can take to right-size a Web site's hardware platform and meet demands for service *except*:

- A) scaling hardware vertically.
- B) scaling hardware horizontally.
- C) replacing static pages with dynamically generated pages.
- D) improving processing architecture.

Answer: C

Difficulty: Difficult

AACSB: Information technology

59) All of the following are methods of improving the processing architecture of a Web site *except*:

- A) separating static content from dynamic content.
- B) optimizing ASP code.
- C) optimizing the database schema.
- D) adding Web servers.

Answer: D

Difficulty: Difficult

AACSB: Information technology

60) Which of the following is the least expensive path to creating a mobile Internet presence?

- A) developing a native app
- B) resizing an existing Web site for mobile use
- C) building a mobile Web app using HTML
- D) building a mobile Web app using Java

Answer: B

Difficulty: Moderate

AACSB: Information technology

61) All of the following are important factors in Web site optimization *except*:

- A) selecting keywords and page titles.
- B) identifying market niches for your services or products.
- C) buying search engine ads.
- D) adhering to accessibility guidelines.

Answer: D

Difficulty: Easy

AACSB: Information technology

62) \_\_\_\_\_ provides a set of standards for communicating between a browser and a program running on a server that allows for interaction between the user and server.

- A) CGI
- B) ColdFusion
- C) JavaScript
- D) VBScript

Answer: A

Difficulty: Moderate

AACSB: Information technology

63) \_\_\_\_\_ is a programming language invented by Netscape used to control the objects on an HTML page and handle interactions with the browser.

- A) VBScript
- B) ActiveX
- C) ColdFusion
- D) JavaScript

Answer: D

Difficulty: Moderate

AACSB: Information technology

64) The primary way a Web site is able to personalize the content presented to a visitor is through the use of:

- A) privacy policies.
- B) cookies.
- C) accessibility rules.
- D) site management tools.

Answer: B

Difficulty: Easy

AACSB: Information technology

65) Which of the following is an example of dynamic content?

- A) product photographs
- B) product descriptions
- C) home page graphic
- D) blog posts

Answer: D

Difficulty: Easy

AACSB: Information technology

66) The information elements that the system must produce to achieve its business objectives are called \_\_\_\_\_.

Answer: information requirements

Difficulty: Moderate

AACSB: Information technology

67) Hiring an external vendor to provide services that you cannot perform with in-house personnel is known as \_\_\_\_\_.

Answer: outsourcing

Difficulty: Moderate

AACSB: Application of knowledge

68) The practice of owning (or leasing) and managing your own Web servers but housing them in a vendor's physical facility is known as \_\_\_\_\_.

Answer: co-location

Difficulty: Moderate

AACSB: Information technology

69) \_\_\_\_\_ involves testing the site as a whole, in the same way a typical user would when using the site.

Answer: System testing

Difficulty: Moderate

AACSB: Information technology

70) \_\_\_\_\_ is the process of comparing a Web site with that of its competitors in terms of response speed, quality of layout, and design.

Answer: Benchmarking

Difficulty: Moderate

AACSB: Information technology

71) \_\_\_\_\_ refers to the arrangement of software, machinery, and tasks in an information system needed to achieve a specific functionality.

Answer: System architecture

Difficulty: Moderate

AACSB: Information technology

72) A standard known as \_\_\_\_\_ makes it possible to access data from any application regardless of what database is used.

Answer: ODBC

Difficulty: Difficult

AACSB: Information technology

73) With \_\_\_\_\_, the contents of a Web page are stored as objects in a database, rather than being hard-coded in HTML.

Answer: dynamic page generation

Difficulty: Moderate

AACSB: Information technology

74) The development of a(an) \_\_\_\_\_ is the major milestone of the planning phase of developing an e-commerce presence.

Answer: mission statement, Web mission statement

Difficulty: Moderate

AACSB: Application of knowledge

75) To automatically adjust the layout of a Web site depending on user screen resolution, developers are now using \_\_\_\_\_ Web design tools and techniques.

Answer: responsive

Difficulty: Difficult

AACSB: Information technology

76) A SWOT analysis describes strengths, weaknesses, opportunities, and \_\_\_\_\_.

Answer: threats

Difficulty: Easy

AACSB: Application of knowledge

77) A(n) \_\_\_\_\_ is an application designed specifically to operate using a mobile device's hardware and operating system.

Answer: native app

Difficulty: Moderate

AACSB: Information technology

78) A(n) \_\_\_\_\_ is a small, prebuilt chunk of code that executes automatically in your HTML Web page to perform a specific task such as providing weather information.

Answer: widget

Difficulty: Easy

AACSB: Information technology

79) \_\_\_\_\_ is a programming language that Microsoft created to compete with JavaScript.

Answer: VBScript

Difficulty: Moderate

AACSB: Information technology

80) A(n) \_\_\_\_\_ is a set of public statements to customers declaring how you will treat any personal information that you gather from them on your Web site.

Answer: privacy policy

Difficulty: Moderate

AACSB: Information technology

81) Describe the major issues surrounding the decisions to build and/or host your own e-commerce Web site or to outsource some aspects of site development. Include the advantages and disadvantages of each decision.

Answer: If you decide to build an e-commerce Web site in-house, you will need a multiskilled staff including programmers, graphic artists, Web designers, and project managers. You will also have to select and purchase software and hardware. Building a site from scratch involves a great deal of risk, and the costs can be high because many of the required elements of an e-commerce site such as shopping carts, credit card authentication and processing, inventory management, and order processing are quite complex. Specialized firms have already perfected these tools and your staff will often have to learn to build all of these features themselves. The advantage is that you and your staff may be able to build a site that exactly suits the specific needs of your company. Another advantage is that you will be developing a skilled staff and consequently acquiring an invaluable supply of in-house knowledge that will enable your firm to change the site if necessary due to the rapidly changing business environment.

If on the other hand, you decide to purchase an expensive site-building package, you will have to evaluate different packages to decide which one will be best suited to your firm's needs. This can be a lengthy process and some packages may have to be modified. Additional vendors may have to be hired to execute the modifications, and this can cause the costs to mount rapidly.

You can also purchase less expensive, prebuilt templates, but you will be limited to the functionality already built into the template. You can choose templates from merchant-solution vendors such as Amazon Stores, or use the templates from a site-building tool such as WordPress. Brick-and-mortar retailers can generally design a site themselves because they have a skilled staff in place and have made large investments in information technology, such as databases and telecommunications. They will usually use outside vendors to build the e-commerce applications for the site. Medium-size startups will often purchase a prepackaged site-building tool and make modifications as necessary. Small startups that only require a simple virtual storefront will usually use a template.

The hosting decision is independent from the building decision, but the two are usually considered at the same time. Most businesses choose to outsource hosting because it is generally less expensive than it would be for them to purchase all of the hardware and the physical space, lease the communications lines, and hire the staff. Large hosting firms can build the telecommunication links and emergency power supplies and achieve economies of scale by establishing huge "server farms" in strategic locations around the country. If you host your own site you must also build the security and backup capabilities yourself.

Another option is co-location in which a firm purchases or leases a Web server and has total control over its operation, but the server is located in the vendor's physical facility. In a co-location agreement, the vendor maintains the facility, the machinery, and the communication lines. Small ISPs may not be able to provide service that is as reliable as the large providers. The disadvantage of outsourcing hosting is that as your business grows, you may need more power or services than the hosting company can provide. This is the main reason that firms will decide to host their own sites, but the costs will almost always be higher than if they had chosen an outsourcing firm.

Difficulty: Moderate

AACSB: Analytical thinking; Information technology; Written and oral communication

82) Explain the main functionalities included in e-commerce server software and the decision-making process for a manager choosing from among the various e-commerce merchant server software suites.

Answer: The main functionalities included in e-commerce server software are online catalog, order taking capabilities using an online shopping cart, and online credit card processing. Merchant server software typically includes a database and the capability to post lists, product descriptions, product photographs, and in larger sites even sound, animations, videos, or interactivities with product demonstrations and customer service representatives. Online shopping carts enable customers to set aside items they wish to purchase while they continue to shop at the site. Online shopping cart capabilities must also include the ability for consumers to review the items they have set aside and delete or edit items as necessary. Finally, the customer must be able to click a button to begin the order processing system. Credit card processing must work in conjunction with the shopping cart so that the customer's credit card can be verified, the charge can be debited to the card, and a credit to the firm's account can be made. Merchant server software/e-commerce suites offer an integrated environment that promises to provide most or all of the functionality and capabilities you will need to develop a sophisticated, customer-centric site. E-commerce suites come in three general ranges of price and functionality: basic, mid-range, and high-end.

Key factors to consider when selecting a package include functionality, support for different business models, business process modeling tools, visual site management tools and reporting, performance and scalability, connectivity to existing business systems, compliance with standards, global and multicultural capability, and local sales tax and shipping rules.

For instance, although e-commerce suites promise to do everything, your business may require special functionality. You will need a list of business functionality requirements. Your business may involve several different business models. Be sure the package can support all of your business models. You may wish to change your business processes, such as order taking and order fulfillment. Does the suite contain tools for modeling business process and work flows? Understanding how your site works will require visual reporting tools that make its operation transparent to many different people in your business. A poorly designed software package will drop off significantly in performance as visitors and transactions expand into the thousands per hour, or minute. Check for performance and scalability by stress testing a pilot edition or obtaining data from the vendor about performance under load. You will have to connect the e-commerce suite to your traditional business systems. How will this connection to existing systems be made, and is your staff skilled in making the connection? Because of the changing technical environment—in particular, changes in mobile commerce platforms—it is important to document exactly what standards the suite supports now, and what the migration path will be toward the future. Finally, your e-commerce site may have to work both globally and locally. You may need a foreign language edition using foreign currency denominations. And you will have to collect sales taxes across many local, regional, and national tax systems. Does the e-commerce suite support this level of globalization and localization?

Difficulty: Difficult

AACSB: Analytical thinking; Information technology; Written and oral communication

83) Explain both the demand-side and the supply-side considerations when choosing the hardware platform for an e-commerce site. Include a discussion of I/O-intensive vs. CPU-intensive operations and scalability.

Answer: The hardware platform refers to the underlying computing equipment that a system will need in order to perform all of the necessary e-commerce functions. You must have enough platform capacity to meet peak demand, without overinvesting in unnecessary and expensive equipment. The question is: How much computing and telecommunications capacity will be enough to meet that peak demand?

On the demand side, the first factor to consider is the maximum number of simultaneous users your site experiences. System performance will degrade as more simultaneous users request service. Processing HTTP requests for static pages is an I/O or input/output intensive operation, meaning that it does not require heavy-duty processing power. However, as customers request more advanced services such as searching the site, registering with the site, filling a shopping cart and checking out, and particularly downloading large multimedia files, much more processing power is required and site performance can deteriorate rapidly. The user profile on your site will help to determine the necessary hardware platform. What types of requests will users on your site make, for how many pages, and for what kind of service? Another factor to consider is the nature of the content on your site. If your site uses dynamic page generation and business logic, as does the shopping cart, the load on the processor increases rapidly. These types of requests are CPU-intensive operations, meaning that they require a great deal of processing power. Any user interactions that require interfacing with a database, such as filling out forms, adding items to the shopping cart, making purchases, or filling out customer questionnaires, require lots of processing power. The final factor to consider on the demand side is the telecommunication link your site has to the Web. The number of hits your site can handle per second depends on the bandwidth connections between your server and the Web. The larger the available bandwidth, the more simultaneous users your site can handle. The connection to the client is also a consideration. As consumers embrace broadband connections, they will be able to make far more frequent requests and will demand richer content from your site. This increased demand will mean that additional capacity requirements may be needed.

After you have estimated the present and future demands you expect your site to have, you will have to look at the supply side considerations. First and foremost is scalability. How will your site be able to increase in size as demand warrants? You can scale your site vertically by upgrading the servers from single processor to multiple processors. The drawbacks are that this can become expensive with each growth cycle and that the site becomes overly dependent on just a small number of powerful machines. You can scale your site horizontally by adding multiple single processor servers and balancing the load among many servers. This can be less expensive as you can use older PCs that would otherwise be discarded, but you will have to purchase special load-balancing software. The main drawbacks are that the size of the physical facility will have to increase and that there is added management complexity. Perhaps the best method for meeting the demands for service on your site is to improve the processing architecture of your site by splitting the workload up into I/O-intensive and CPU-intensive operations. Then you can fine-tune the servers to handle each type of workload. You can add RAM to servers that will store the HTML pages, reducing the load on the hard drives, and move the CPU-intensive activities to high-end multiple processor servers that are dedicated to handling a particular task such as order processing and accessing the necessary databases. These steps will enable you to reduce the number of servers required to handle your peak demand.

Difficulty: Moderate

AACSB: Analytical thinking; Information technology; Written and oral communication

84) What tools or technologies are available for providing interactivity and active content on a Web site and what functionality do they add? Describe at least five.

Answer: Among the tools that are available for providing interactivity on a Web site are widgets, mashups, CGI scripts, Java, Java Server Pages, JavaScript, Active Server Pages, ActiveX, VBScript, and Cold Fusion.

Widgets are small chunks of code that execute automatically in your HTML Web page. They typically present users with dynamic content such as news headlines, calendars, clocks, weather, live TV, games, and other functionality.

Mashups pull functionality from one Web site and include it in another, such as a real-estate agent incorporating Google Maps data in his or her own Web site.

CGI or Common Gateway Interface is a set of standards for communications between a browser and a program running on a server that allows for interaction between the user and the server. CGI allows an executable program to access all of the information within incoming requests from clients. The program then generates the required output for a Web page and sends it back to the client through the Web server. For example, CGI scripts are behind the display of the contents of a shopping cart to a user. The CGI script retrieves the contents from a database and returns it to the server, which sends it as an HTML page to the user's client computer. All of the computing takes place on the server side, thus this is referred to as server-side computing.

Active Server Pages (ASP) and its successor, ASP.NET, are Microsoft's versions of server-side programming. ASP and ASP.NET enable Web developers to easily create and open records from a database and execute programs within an HTML page. They also handle all of the various forms of interactivity found on e-commerce sites.

Java is a programming language that allows programmers to create interactivity on the user's client computer. The leading browsers today have a Java Virtual Machine (VM) that enables Java applets to be downloaded to the client over the Web. Although Java can display interesting graphics and create small interactive programs such as calculators and calendars that are executed entirely on the user's computer, thus saving considerable load on the server, it is not used extensively on corporate e-commerce sites for several reasons. First, the different vendors produce different versions of Java, resulting in applets built using proprietary versions that would only work well in the vendor's own browser or that would crash or malfunction in some browsers. Second, many firms will not allow Java applets through their firewalls for security reasons.

Java Server Pages (JSP), like CGI and ASP, is a Web page coding standard. Developers use a combination of HTML, JSP scripts, and Java to dynamically generate Web pages. Java servlets (small programs) are specified in the Web page and run on the Web server to modify pages before they are sent to the user. JSP is supported by most of the popular application servers on the market today.

JavaScript is a programming language invented by Netscape that is used to control objects on HTML pages as well as the interactions with the browser. It is much more acceptable to corporations because it is more stable than Java and it is restricted to the operation of requested Web pages. It is used for many common, yet crucial functions such as verifying and validating customer input. For example, it is used to verify that a valid phone number or e-mail address has been entered.

ActiveX is Microsoft's programming language that competes with Java, while VBScript is the competitor for JavaScript. ActiveX controls are the equivalent of Java applets; however, when the browser receives a Web page containing an ActiveX control, the browser simply runs the program on the page rather than downloading it to the client's computer. ActiveX also has full access to the client's resources (printers, networks, and hard drives), unlike Java. However, neither ActiveX nor VBScript work in any browser other than Internet Explorer. Due to the proprietary nature of Java, ActiveX, and VBScript, they are generally avoided by e-commerce site developers. CGI scripts, JSP, and JavaScript are the leading tools for providing interactive content.

ColdFusion is an integrated server-side environment for developing interactive Web applications. It combines an intuitive tag-based scripting language and a tag-based server scripting language (CFML) that lowers the cost of creating interactive features. It provides visual design, debugging, and deployment tools that make it a complete Web application development platform.

Difficulty: Moderate

AACSB: Analytical thinking; Information technology; Written and oral communication

85) Discuss some of the unique features that must be taken into account when designing a mobile Web presence.

Answer: Designing a mobile Web presence is somewhat different from designing a Web site that will be accessed via a traditional desktop computer. For instance, mobile hardware is smaller, and there are more resource constraints on data storage and processing power. The mobile platform is also constrained by slower connection speeds than provided by traditional desktop computers. As a result, file sizes should be kept smaller, and the number of files sent to the user reduced. Mobile displays are much smaller and require simplification, and some screens are not as easily visible in sunlight. Touch screen technology also introduces new interaction routines that are different from the traditional mouse and keyboard. The mobile platform is not as easy to use as a data entry tool, and therefore choice boxes and lists should be used more frequently so that the user can easily scroll and touch-select options, rather than type them in. You will also want to determine whether to create a mobile-friendly version of your e-commerce site or implement responsive Web design, or create an entirely new mobile app. You can either choose to build a mobile Web app or a native app. Building a mobile Web app that uses the mobile device's browser requires more effort and cost than developing a mobile Web site, suffers from the same limitations as any browser-based application, but does offer some advantages such as better graphics, more interactivity, and faster local calculations. Building a native app, which is programmed for specific mobile operating systems, requires much more programming; however, it will allow you much greater creative rein in making a unique customer experience.

Difficulty: Moderate

AACSB: Analytical thinking; Information technology; Written and oral communication

86) Your e-commerce design company has received an RFP to help create an e-commerce

presence for Tucci's, a renowned gourmet and specialty butcher that now wishes to sell goods over the Internet. Describe the elements you will include in your proposal to Tucci's.

Answer: Student answers will vary, but should include the following:

Elements that will be in the proposal include the (1) business goals, or vision, or mission statement, (2) identification of the target audience, (3) description of the marketspace, (4) a strategic analysis or SWOT analysis, (5) the content to be included, (6) a development timeline, and (7) a budget. Other recommendations that the student should mention include using social, local, or mobile marketing.

Difficulty: Moderate

AACSB: Analytical thinking; Information technology; Written and oral communication

## **Chapter 5 E-commerce Security and Payment Systems**

1) Typically, the more security measures added to an e-commerce site, the slower and more difficult it becomes to use.

Answer: TRUE

Difficulty: Moderate

AACSB: Information technology

2) A worm does not need to be activated by a user in order for it to replicate itself.

Answer: TRUE

Difficulty: Moderate

AACSB: Information technology

3) A Trojan horse appears to be benign, but then does something other than expected.

Answer: TRUE

Difficulty: Moderate

AACSB: Information technology

4) Phishing attacks rely on browser parasites.

Answer: FALSE

Difficulty: Moderate

AACSB: Information technology

5) Insiders present a greater security threat to e-commerce sites than outsiders.

Answer: TRUE

Difficulty: Moderate

AACSB: Application of knowledge

6) Spoofing involves attempting to hide a true identity by using someone else's e-mail or IP address.

Answer: FALSE

Difficulty: Difficult

AACSB: Information technology

7) Drive-by downloads are now the most common method of infecting computers.

Answer: TRUE

Difficulty: Moderate

AACSB: Information technology

8) Smishing attacks exploit SMS messages.

Answer: TRUE

Difficulty: Difficult

AACSB: Information technology

9) TLS does not guarantee server-side authentication.

Answer: FALSE

Difficulty: Difficult

AACSB: Information technology

10) The easiest and least expensive way to prevent threats to system integrity is to install anti-virus software.

Answer: TRUE

Difficulty: Moderate

AACSB: Information technology

11) The U.S. federal government has historically not been in favor of the development and export of strong encryption systems.

Answer: TRUE

Difficulty: Moderate

AACSB: Application of knowledge

12) Credit cards are the dominant form of online payment throughout the world.

Answer: FALSE

Difficulty: Easy

AACSB: Application of knowledge

13) In order to accept payments by credit card, online merchants typically must have a merchant account established with a bank or financial institution.

Answer: TRUE

Difficulty: Moderate

AACSB: Application of knowledge

14) Digital cash is legal tender that is instantly convertible into other forms of value without the intermediation of any third parties.

Answer: FALSE

Difficulty: Difficult

AACSB: Information technology

15) PayPal requires the recipient of a payment to have a PayPal account to receive funds.

Answer: TRUE

Difficulty: Moderate

AACSB: Information technology

16) All of the following are factors in contributing to the increase in cybercrime *except*:

A) the ability to remotely access the Internet.

B) the Internet's similarity to telephone networks.

C) the ability to anonymously access the Internet.

D) the Internet is an open, vulnerable design.

Answer: B

Difficulty: Moderate

AACSB: Analytical thinking

- 17) Bitcoins are an example of:
- A) digital cash.
  - B) virtual currency.
  - C) a stored value payment system.
  - D) an EBPP system.

Answer: A

Difficulty: Moderate

AACSB: Information technology

- 18) The overall rate of online credit card fraud is \_\_\_\_\_ % of all online card transactions.

- A) less than 1
- B) around 1
- C) around 5
- D) around 10

Answer: A

Difficulty: Difficult

AACSB: Information technology

- 19) In the United States, the primary form of online payment is:

- A) PayPal.
- B) credit cards.
- C) debit cards.
- D) Google Wallet.

Answer: B

Difficulty: Easy

AACSB: Information technology

- 20) The six key dimensions to e-commerce security are nonrepudiation, authenticity, availability, integrity, privacy, and:

- A) confidentiality.
- B) usability.
- C) functionality.
- D) viability.

Answer: A

Difficulty: Moderate

AACSB: Information technology

- 21) \_\_\_\_\_ refers to the ability to ensure that e-commerce participants do not deny their online actions.

- A) Nonrepudiation
- B) Authenticity
- C) Availability
- D) Integrity

Answer: A

Difficulty: Moderate

AACSB: Information technology

22) \_\_\_\_\_ refers to the ability to identify the person or entity with whom you are dealing on the Internet.

- A) Nonrepudiation
- B) Authenticity
- C) Availability
- D) Integrity

Answer: B

Difficulty: Moderate

AACSB: Information technology

23) Which of the following is an example of an integrity violation of e-commerce security?

- A) A Web site is not actually operated by the entity the customer believes it to be.
- B) A merchant uses customer information in a manner not intended by the customer.
- C) A customer denies that he or she is the person who placed the order.
- D) An unauthorized person intercepts an online communication and changes its contents.

Answer: D

Difficulty: Moderate

AACSB: Analytical thinking

24) \_\_\_\_\_ refers to the ability to ensure that an e-commerce site continues to function as intended.

- A) Nonrepudiation
- B) Authenticity
- C) Availability
- D) Integrity

Answer: C

Difficulty: Moderate

AACSB: Information technology

25) An example of a privacy violation of e-commerce security is:

- A) your e-mail being read by a hacker.
- B) your online purchasing history being sold to other merchants without your consent.
- C) your computer being used as part of a botnet.
- D) your e-mail being altered by a hacker.

Answer: B

Difficulty: Moderate

AACSB: Analytical thinking

26) \_\_\_\_\_ refers to the ability to ensure that messages and data are only available to those authorized to view them.

- A) Confidentiality
- B) Integrity
- C) Privacy
- D) Availability

Answer: A

Difficulty: Moderate

AACSB: Information technology

- 27) Which of the following is *not* a key point of vulnerability when dealing with e-commerce?
- A) the client computer
  - B) the server
  - C) the communications pipeline
  - D) the credit card companies

Answer: D

Difficulty: Moderate

AACSB: Information technology

- 28) Which of the following did Dropbox implement after a series of security snafus in 2011 and 2012?

- A) anti-virus software
- B) two-factor authentication
- C) SSL/TLS
- D) firewall

Answer: B

Difficulty: Difficult

AACSB: Information technology

- 29) Which of the following is a prominent hacktivist group?

- A) Anonymous
- B) Anti-Phishing Working Group
- C) IC3
- D) Symantec

Answer: A

Difficulty: Easy

AACSB: Information technology

- 30) Most of the world's spam is delivered via which of the following?

- A) viruses
- B) worms
- C) Trojan horses
- D) botnets

Answer: D

Difficulty: Moderate

AACSB: Information technology

- 31) Botnets are typically used for all of the following *except*:

- A) DDoS attacks.
- B) phishing attacks.
- C) storing network traffic for analysis.
- D) stealing information from computers.

Answer: B

Difficulty: Moderate

AACSB: Information technology

32) Software that is used to obtain private user information such as a user's keystrokes or copies of e-mail is referred to as:

- A) spyware.
- B) a backdoor.
- C) pupware.
- D) adware.

Answer: A

Difficulty: Moderate

AACSB: Information technology

33) Online bill payments are believed to cost \_\_\_\_\_ to process compared to \_\_\_\_\_ for paper bills.

- A) 20 to 30 cents, \$3 to \$7
- B) \$1 to \$2, \$10 to \$20
- C) 3 to \$7, 20 to 30 cents
- D) \$10 to \$20, \$ 1 to \$2

Answer: A

Difficulty: Difficult

AACSB: Information technology

34) Reventon is an example of:

- A) a macro virus.
- B) ransomware.
- C) a backdoor.
- D) a bot program.

Answer: B

Difficulty: Difficult

AACSB: Information technology

35) What is the most frequent cause of stolen credit cards and card information today?

- A) lost cards
- B) the hacking and looting of corporate servers storing credit card information
- C) sniffing programs
- D) phishing attacks

Answer: B

Difficulty: Moderate

AACSB: Information technology

36) Which dimension(s) of security is spoofing a threat to?

- A) integrity
- B) availability
- C) integrity and authenticity
- D) availability and integrity

Answer: C

Difficulty: Difficult

AACSB: Analytical thinking

37) All of the following are examples of malicious code *except*:

- A) viruses.
- B) bots.
- C) worms.
- D) sniffers.

Answer: D

Difficulty: Moderate

AACSB: Information technology

38) Symmetric key encryption is also known as:

- A) public key encryption.
- B) secret key encryption.
- C) PGP.
- D) PKI.

Answer: B

Difficulty: Moderate

AACSB: Information technology

39) All the following statements about symmetric key encryption are true *except*:

- A) in symmetric key encryption, both the sender and the receiver use the same key to encrypt and decrypt a message.
- B) the Data Encryption Standard is a symmetric key encryption system.
- C) symmetric key encryption is computationally slower.
- D) symmetric key encryption is a key element in digital envelopes.

Answer: C

Difficulty: Difficult

AACSB: Information technology

40) The Data Encryption Standard uses a(n) \_\_\_\_\_-bit key.

- A) 8
- B) 56
- C) 256
- D) 512

Answer: B

Difficulty: Difficult

AACSB: Information technology

41) All of the following statements about public key encryption are true *except*:

- A) public key encryption uses two mathematically related digital keys.
- B) public key encryption ensures authentication of the sender.
- C) public key encryption does not ensure message integrity.
- D) public key encryption is based on the idea of irreversible mathematical functions.

Answer: B

Difficulty: Difficult

AACSB: Information technology

42) Which of the following is the current standard used to protect Wi-Fi networks?

- A) WEP
- B) TLS
- C) WPA2
- D) WPA3

Answer: C

Difficulty: Moderate

AACSB: Information technology

43) All of the following statements about PKI are true *except*:

- A) The term *PKI* refers to the certification authorities and digital certificate procedures that are accepted by all parties.
- B) PKI is not effective against insiders who have a legitimate access to corporate systems including customer information.
- C) PKI guarantees that the verifying computer of the merchant is secure.
- D) The acronym *PKI* stands for public key infrastructure.

Answer: C

Difficulty: Difficult

AACSB: Information technology

44) A digital certificate contains all of the following *except* the:

- A) subject's private key.
- B) subject's public key.
- C) digital signature of the certification authority.
- D) digital certificate serial number.

Answer: A

Difficulty: Difficult

AACSB: Information technology

45) Which of the following dimensions of e-commerce security is *not* provided for by encryption?

- A) confidentiality
- B) availability
- C) message integrity
- D) nonrepudiation

Answer: B

Difficulty: Difficult

AACSB: Information technology

46) All of the following are methods of securing channels of communication *except*:

- A) SSL/TLS.
- B) certificates.
- C) VPN.
- D) FTP.

Answer: D

Difficulty: Moderate

AACSB: Information technology

47) A \_\_\_\_\_ is hardware or software that acts as a filter to prevent unwanted packets from entering a network.

- A) firewall
- B) virtual private network
- C) proxy server
- D) PPTP

Answer: A

Difficulty: Easy

AACSB: Information technology

48) Proxy servers are also known as:

- A) firewalls.
- B) application gateways.
- C) dual home systems.
- D) packet filters.

Answer: C

Difficulty: Moderate

AACSB: Information technology

49) All of the following are used for authentication *except*:

- A) digital signatures.
- B) certificates of authority.
- C) biometric devices.
- D) packet filters.

Answer: D

Difficulty: Moderate

AACSB: Information technology

50) What is the first step in developing an e-commerce security plan?

- A) Create a security organization.
- B) Develop a security policy.
- C) Perform a risk assessment.
- D) Perform a security audit.

Answer: C

Difficulty: Moderate

AACSB: Information technology

51) An intrusion detection system can perform all of the following functions except:

- A) examining network traffic.
- B) setting off an alarm when suspicious activity is detected.
- C) checking network traffic to see if it matches certain patterns or preconfigured rules.
- D) blocking suspicious activity.

Answer: D

Difficulty: Moderate

AACSB: Information technology

52) Which of the following is *not* an example of an access control?

- A) firewalls
- B) proxy servers
- C) digital signatures
- D) login passwords

Answer: C

Difficulty: Moderate

AACSB: Information technology

53) Online bill payment now accounts for \_\_\_\_\_ of all bill payments.

- A) 10%
- B) 25%
- C) 50%
- D) 100%

Answer: C

Difficulty: Moderate

AACSB: Information technology

54) To allow lower-level employees access to the corporate network while preventing them from accessing private human resources documents, you would use:

- A) access controls.
- B) an authorization management system.
- C) security tokens.
- D) an authorization policy.

Answer: B

Difficulty: Easy

AACSB: Information technology

55) Which of the following left the WikiLeaks Web site effectively inoperable in August 2012?

- A) SQL injection attack
- B) browser parasite
- C) DDoS attack
- D) botnet

Answer: C

Difficulty: Moderate

AACSB: Information technology

56) The research firm Cybersource estimated that online credit card fraud in the United States amounted to about \_\_\_\_\_ in 2012.

- A) \$35 million
- B) \$350 million
- C) \$3.5 billion
- D) \$35 billion

Answer: C

Difficulty: Moderate

AACSB: Information technology

57) P2P payment systems are a variation on what type of payment system?

- A) stored value payment system
- B) digital checking system
- C) accumulating balance system
- D) digital credit card system

Answer: A

Difficulty: Moderate

AACSB: Information technology

58) Which of the following countries has been found to have engaged in cyberespionage against Google?

- A) Russia
- B) China
- C) Iran
- D) Iraq

Answer: B

Difficulty: Easy

AACSB: Application of knowledge

59) Rustock is an example of which of the following?

- A) worm
- B) botnet
- C) phishing
- D) hacktivism

Answer: B

Difficulty: Moderate

AACSB: Information technology

60) None of the following payment systems offers immediate monetary value *except*:

- A) personal checks.
- B) credit cards.
- C) stored value/debit card.
- D) accumulating balance.

Answer: C

Difficulty: Moderate

AACSB: Application of knowledge

61) Malware that comes with a downloaded file that a user requests is called a:

- A) Trojan horse.
- B) backdoor.
- C) drive-by download.
- D) PUP.

Answer: C

Difficulty: Moderate

AACSB: Information technology

62) Which of the following is *not* an example of a PUP?

- A) adware
- B) browser parasite
- C) drive-by download
- D) spyware

Answer: C

Difficulty: Difficult

AACSB: Information technology

63) All of the following are limitations of the existing online credit card payment system *except*:

- A) poor security.
- B) cost to consumers.
- C) cost to merchant.
- D) social equity.

Answer: B

Difficulty: Moderate

AACSB: Application of knowledge

64) Linden Dollars, created for use in Second Life, are an example of:

- A) digital cash.
- B) virtual currency.
- C) EBPP.
- D) peer-to-peer payment systems.

Answer: B

Difficulty: Moderate

AACSB: Information technology

65) Which of the following is a set of short-range wireless technologies used to share information among devices within about 2 inches of each other?

- A) DES
- B) NFC
- C) IM
- D) text messaging

Answer: B

Difficulty: Difficult

AACSB: Information technology

66) The \_\_\_\_\_ worm was designed to disarm computers that control the centrifuges in Iran's uranium enrichment process.

Answer: Stuxnet

Difficulty: Moderate

AACSB: Information technology

67) To allow employees to connect securely over the Internet to their corporate network, you would use a(n) \_\_\_\_\_.

Answer: VPN, virtual private network

Difficulty: Moderate

AACSB: Information technology

68) The exploitation of human fallibility and gullibility to distribute malware is known as \_\_\_\_\_.

Answer: social engineering

Difficulty: Moderate

AACSB: Information technology

69) A(n) \_\_\_\_\_ is a hacker that believes he or she is pursuing some greater good by breaking in and revealing system flaws.

Answer: grey hat

Difficulty: Easy

AACSB: Information technology

70) Automatically redirecting a Web link to a different address is called \_\_\_\_\_.

Answer: pharming

Difficulty: Moderate

AACSB: Information technology

71) A(n) \_\_\_\_\_ vulnerability involves a vulnerability unknown to security experts that is actively exploited before there is a patch available.

Answer: zero-day

Difficulty: Moderate

AACSB: Information technology

72) The study of measurable biological or physical characteristics is called \_\_\_\_\_.

Answer: biometrics

Difficulty: Moderate

AACSB: Information technology

73) In encryption, the method used to transform plain text to encrypted text is called a(n) \_\_\_\_\_.

Answer: key, cipher

Difficulty: Moderate

AACSB: Information technology

74) \_\_\_\_\_ involves cybervandalism and data theft for political purposes.

Answer: Hacktivism

Difficulty: Moderate

AACSB: Information technology

75) The most common form of securing a digital channel of communication is \_\_\_\_\_.

Answer: SSL/TLS, Secure Sockets Layer/Transport Layer Security

Difficulty: Difficult

AACSB: Information technology

76) A(n) \_\_\_\_\_ is a feature of viruses, worms, and Trojans that allows an attacker to remotely access a compromised computer.

Answer: backdoor

Difficulty: Moderate

AACSB: Information technology

77) To internal computers, a proxy server is known as the \_\_\_\_\_.

Answer: gateway

Difficulty: Difficult

AACSB: Information technology

78) \_\_\_\_\_ typically handle verification of accounts and balances in the credit card system.

Answer: Processing centers, Clearinghouses

Difficulty: Difficult

AACSB: Information technology

79) Malicious code that is designed to take advantage of a security hole in computer software or operating system is called a(n) \_\_\_\_\_.

Answer: exploit

Difficulty: Moderate

AACSB: Information technology

80) \_\_\_\_\_ is a form of online payment system for monthly bills.

Answer: EBPP, Electronic billing presentment and payment

Difficulty: Moderate

AACSB: Information technology

81) Discuss and explain the various types of malicious code and how they work. Include the different types of viruses.

Answer: Malicious code includes a variety of threats such as viruses, worms, Trojan horses, ransomware, and bot programs. A virus is a computer program that can replicate or make copies of itself and spread to other files. Viruses can range in severity from simple programs that display a message or graphic as a "joke" to more malevolent code that will destroy files or reformat the hard drive of a computer, causing programs to run incorrectly. Worms are designed to spread not only from file to file but from computer to computer and do not necessarily need to be activated in order to replicate. A Trojan horse is not itself a virus because it does not replicate but it is a method by which viruses or other malicious code can be introduced into a computer system. It appears benign and then suddenly does something harmful. For example, it may appear to be only a game and then it will steal passwords and mail them to another person. A backdoor is a feature of worms, viruses, and Trojans that allow attackers to remotely access compromised computers. Ransomware (or also known as scareware) is a type of malware (often a worm) that locks your computer or files to stop you from accessing them. Bot programs are a type of malicious code that can be covertly installed on a computer when it is attached to the Internet. Once installed, the bot responds to external commands sent by the attacker, and many bots can be coordinated by a hacker into a botnet.

Difficulty: Moderate

AACSB: Analytical thinking; Information technology; Written and oral communication

82) Explain the difference between symmetric key encryption and public key encryption. Which dimensions of e-commerce security does encryption address?

Answer: Symmetric key encryption involves the use of a secret cipher that transforms plain text into cipher text. Both the sender and the receiver use the same key to encrypt and decrypt the message. The possibilities for simple substitution and transposition ciphers are endless, but there are several flaws in these types of systems that make them inadequate for use today. First, in order for the sender and the receiver to have the same key, it must be sent over a communication medium that is insecure or they must meet in person to exchange the key. If the secret key is lost or stolen, the encryption system fails. This method can be used effectively for data storage protection, but is less convenient for e-mail since the correspondents have to pass the secret key to one another over another secure medium prior to commencing the communication. Second, in the digital age, computers are so fast and powerful that these ancient encryption techniques can be quickly and easily broken. Modern digital encryption systems must use keys with between 56 and 512 binary digits in order to ensure that decryption would be unlikely. Third, for commercial use on an e-commerce site each of the parties in a transaction would need a secret key. In a population of millions of Internet users, thousands of millions of keys would be needed to accommodate all e-commerce customers.

Public key encryption solves the problem of exchanging keys. In this method every user has a pair of numeric keys: private and public. The public key is not secret; on the contrary, it is supposed to be disseminated widely. Public keys may be published in company catalogs or on the World Wide Web. The public key is used by outside parties to encrypt the messages addressed to you. The private or secret key is used by the recipient to decipher incoming messages. The main advantage of a public key cryptographic system is its ability to begin secure correspondence over the Internet without prior exchanging of the keys and, therefore, without the need for a meeting in person or using conventional carriers for key exchange.

Encryption can provide four of the six key dimensions of e-commerce security. It can provide assurance that the message has not been altered (integrity), prevent the user from denying that he/she has sent the message (nonrepudiation), provide verification of the identity of the message (authentication), and give assurance that the message has not been read by others (confidentiality).

Difficulty: Moderate

AACSB: Analytical thinking; Information technology; Written and oral communication

83) What dimensions do digital signatures and hash digests add to public key encryption and how do they work?

Answer: Digital signatures and hash digests can add authentication, nonrepudiation, and integrity when used with public key encryption. Encryption technology also allows for digital signatures and authentication. The sender encrypts the message yet again using their private key to produce a digital signature.

To check the confidentiality of a message and ensure it has not been altered in transit, a hash function is used first to create a digest of the message. A hash function is an algorithm that produces a fixed-length number called a hash or message digest. To ensure the authenticity of the message and to ensure nonrepudiation, the sender encrypts the entire block of cipher text one more time using the sender's private key. This produces a digital signature or "signed" cipher text. The result of this double encryption is sent over the Internet to the recipient. Then, the recipient first uses the sender's public key to authenticate the message. Once authenticated, the recipient uses his or her private key to obtain the hash result and original message. As a final step, the recipient applies the same hash function to the original text and compares the result with the result sent by the sender. If the results are the same, the recipient now knows the message has not been changed during transmission. The message has integrity.

Difficulty: Difficult

AACSB: Analytical thinking; Information technology; Written and oral communication

84) Discuss the security of communications channels. Include definitions and explanations for the terms *Secure Sockets Layer/Transport Layer Security (SSL/TLS)*, *secure negotiated session*, *session key*, and *VPN*.

Answer: The Secure Sockets Layer of the Transmission Control Protocol/Internet Protocol (TCP/IP) communications protocol is the main method for securing communications channels on the Web. When you receive a message from a Web server that you will be communicating through a secure channel, this means that SSL/TLS will be used to establish a secure negotiated session. A secure negotiated session is a client-server session in which the URL of the requested document, its contents, and the contents of the forms filled out by the user on the page, as well as the cookies that are exchanged, are all encrypted. The browser and the server exchange digital certificates with one another, determine the strongest shared form of encryption, and begin communicating using a unique symmetric encryption key, agreed upon for just this encounter. This is called a session key. SSL/TLS provides data encryption, server authentication, optional client authentication (as yet still rare for individual users), and message integrity for the TCP/IP connections between two computers.

SSL/TLS addresses the threat of authenticity by allowing users to verify another user's identity or the identity of a server. It also protects the integrity of the messages exchanged. However, once the merchant receives the encrypted credit and order information, that information is typically stored in unencrypted format on the merchant's servers. While SSL/TLS provides secure transactions between merchant and consumer, it only guarantees server-side authentication. Client authentication is optional. In addition, SSL/TLS cannot provide irrefutability—consumers can order goods or download information products and then claim the transaction never occurred.

Virtual private networks (VPNs) enable remote users to access an internal network from the Internet. They use protocols to create a private connection between a user on a local ISP and a private network. This process is called tunneling because it creates a private connection by adding an encrypted wrapper around the message to hide its content. It is called virtual because it appears to be a dedicated secure line when in fact it is a temporary secure line. VPNs are used primarily for transactions between business partners because dedicated connections can be very expensive. The Internet and VPNs can be used to significantly reduce the costs of secure communications.

Difficulty: Moderate

AACSB: Analytical thinking; Information technology; Written and oral communication

85) Explain how an online credit card transaction works, identifying the parties involved and describing how SSL/TLS is involved. What are the limitations of online credit card payment systems?

Answer: The five parties involved in a credit card transaction are the consumer, the merchant, the clearinghouse, the merchant bank (acquiring bank), and the consumer's card issuing bank. The basic payment transaction process works like this: The consumer first makes an online payment by sending his or her credit card information via an online form at the merchant's Web site. Once this information is received by the merchant, the merchant software contacts a clearinghouse (a financial intermediary that authenticates credit cards and verifies account balances). The clearinghouse contacts the card issuing bank to verify the account information. Once verified, the issuing bank credits the account of the merchant at the merchant's bank. The debit to the consumer account is transmitted to the consumer in a monthly statement. SSL is involved in sending the consumer's credit card information safe at the merchant's Web site. When the consumer checks out using the merchant's shopping cart software, a secure tunnel through the Internet is created using SSL/TLS. Using encryption, SSL/TLS secures the session during which credit card information will be sent to the merchant and protects the information from interlopers on the Internet.

There are a number of limitations to the existing credit card payment system, most importantly involving security, merchant risk, cost, and social equity. The security of the transaction is considered to be very poor because neither the merchant nor the consumer can be fully authenticated. The risk merchants face is high. Banks think of Internet credit card orders as the same type of transactions as mail orders or telephone orders. In these transactions, the credit card is not present. There is no way for the merchant to verify the legitimacy of the customer's card or identity before confirming the order. In these transactions, the merchant carries all the risk for fraudulent credit card use. Consumers can disclaim charges even though the items have already been shipped. Merchants also must pay significant charges. These high costs make it unprofitable to sell small items such as individual articles or music tracks over the Internet. Furthermore, credit cards are not very democratic. Millions of young adults and almost 100 million other adult Americans who cannot afford credit cards or who have low incomes and are, therefore, considered poor credit risks cannot participate in e-commerce as it is presently structured in the United States.

Difficulty: Moderate

AACSB: Analytical thinking; Information technology; Written and oral communication

86) Define and explain how EBPP systems work. Describe each of the main EBPP business models.

Answer: EBPP refers to electronic billing presentment and payment systems, which are forms of online payment systems for monthly bills. Analysts expect electronic bill presentation and payment to become one of the fastest growing e-commerce businesses in the United States over the next several years because everyone involved stands to benefit from the process. Billers will cut costs by eliminating printing, paper, envelopes, postage, and the processing of paper checks and payments. Furthermore, EBPP will offer billers an opportunity to enhance customer service and target market. Customers will save time and eliminate checks and postage. Companies can use EBPP to present bills to individual customers electronically or they can contract with a service to handle all billing and payment collection for them. There are two main types of EBPP business models: biller-direct and consolidator. In biller-direct systems, a biller delivers the bill to customers via its own Web site or via a third-party's site. A service bureau is often used to provide the necessary infrastructure. The second major type of EBPP business model is the consolidator model. In this model, a third party, such as a financial institution or portal, aggregates all bills for consumers and ideally permits one-stop bill payment (pay anyone).

Difficulty: Moderate

AACSB: Analytical thinking; Information technology; Written and oral communication

***E-Commerce 2014, 10e (Laudon/Traver)***

**Chapter 6 E-commerce Marketing and Advertising Concepts**

1) In the United States today, single, white, young college-educated males with high income dominate the Internet in terms of percentage of Internet usage.

Answer: FALSE

Difficulty: Moderate

AACSB: Application of knowledge

2) Research has found that of all the standard formats of display ads, wide skyscraper ads are the most effective at holding a user's attention.

Answer: FALSE

Difficulty: Difficult

AACSB: Application of knowledge

3) Price is more important than convenience as a factor in online purchase decisions.

Answer: FALSE

Difficulty: Moderate

AACSB: Application of knowledge

4) E-commerce is a major conduit and generator of offline commerce.

Answer: TRUE

Difficulty: Easy

AACSB: Application of knowledge

5) Online shoppers tend to browse for available products rather than search for specific products they have determined in advance.

Answer: FALSE

Difficulty: Moderate

AACSB: Application of knowledge

6) Research shows that the two most important factors shaping the decision to purchase online are utility and trust.

Answer: TRUE

Difficulty: Easy

AACSB: Application of knowledge

7) In 2013, mobile marketing grew at nearly the same rate as traditional online marketing.

Answer: FALSE

Difficulty: Moderate

AACSB: Application of knowledge

8) Evidence suggests that real-time customer chat increases sales.

Answer: TRUE

Difficulty: Moderate

AACSB: Application of knowledge

9) Transaction logs are built into Web server software.

Answer: TRUE

Difficulty: Easy

AACSB: Information technology

10) Cookies, when combined with Web beacons, can be used to create cross-site profiles.

Answer: TRUE

Difficulty: Moderate

AACSB: Application of knowledge

11) An interstitial ad is typically contained in a pop-up window that the user must close in order to continue.

Answer: FALSE

Difficulty: Moderate

AACSB: Application of knowledge

12) The digital divide still persists along age, income, ethnic, and education dimensions.

Answer: TRUE

Difficulty: Moderate

AACSB: Application of knowledge

13) The cost of sending 10,000 e-mails in an advertising campaign is about the same as sending 5,000.

Answer: TRUE

Difficulty: Easy

AACSB: Application of knowledge

14) The concept of "customer satisfaction" is broader than the concept of "customer experience."

Answer: FALSE

Difficulty: Moderate

AACSB: Application of knowledge

15) Bundling is the process of selling two or more products together for a price that is less than the sum of the two product's individual prices.

Answer: TRUE

Difficulty: Moderate

AACSB: Application of knowledge

16) On a typical day, approximately \_\_\_\_\_ % of adult users in the United States logs on to the Internet.

A) 50

B) 60

C) 70

D) 80

Answer: D

Difficulty: Moderate

AACSB: Application of knowledge

17) Which of the following online advertising formats is the most effective?

- A) banner ads
- B) rich media ads
- C) video ads
- D) e-mail

Answer: C

Difficulty: Moderate

AACSB: Application of knowledge

18) Which of the following online advertising formats attracted the *least* amount of spending in 2013?

- A) search
- B) classifieds
- C) rich media
- D) e-mail

Answer: D

Difficulty: Difficult

AACSB: Application of knowledge

19) Which of the following would you implement to collect and analyze your company's big data?

- A) data warehouse
- B) Hadoop
- C) SQL
- D) profiling

Answer: B

Difficulty: Moderate

AACSB: Application of knowledge

20) Which of the following is *not* one of the main stages of the online purchasing process?

- A) post-purchase service and loyalty
- B) awareness
- C) interaction
- D) browsing

Answer: D

Difficulty: Moderate

AACSB: Application of knowledge

21) Which of the following forms of online advertising is growing the fastest?

- A) paid search
- B) sponsorships
- C) video
- D) rich media

Answer: C

Difficulty: Moderate

AACSB: Application of knowledge

22) If you want to determine the size of your Web site's audience, the metric you will use for the most accurate measurement will be:

- A) page views.
- B) unique visitors.
- C) hits.
- D) reach.

Answer: B

Difficulty: Moderate

AACSB: Application of knowledge

23) In 2013, what was the approximate Internet penetration rate for individuals that have attained less than a high-school education?

- A) 45%
- B) 60%
- C) 75%
- D) 90%

Answer: B

Difficulty: Difficult

AACSB: Application of knowledge

24) Which of the following is *not* one of the four main methods advertisers use to behaviorally target ads?

- A) Nielsen ratings
- B) data collected from social networks
- C) integration of offline data
- D) clickstream data

Answer: A

Difficulty: Moderate

AACSB: Application of knowledge

25) Search engine advertising and marketing expenditures in 2013 were approximately:

- A) \$19 million.
- B) \$195 million.
- C) \$1.95 billion.
- D) \$19.5 billion.

Answer: D

Difficulty: Difficult

AACSB: Application of knowledge

26) Which of the following is *not* true about search engine advertising?

- A) Spending on search engine advertising constitutes almost half of all online advertising spending.
- B) The top three search engine providers supply over 95% of all online searches.
- C) The click-through rate for search engine marketing has been fairly steady over the years.
- D) Search engine advertising is the fastest growing type of online advertising.

Answer: D

Difficulty: Difficult

AACSB: Application of knowledge

27) Which of the following is *not* a practice that degrades the results and usefulness of search engines?

- A) social search
- B) link farms
- C) content farms
- D) click fraud

Answer: A

Difficulty: Moderate

AACSB: Application of knowledge

28) All of the following are online communications that are used to support the evaluation of alternatives stage of the consumer decision process *except*:

- A) search engines.
- B) online catalogs.
- C) social networks.
- D) targeted banner ads.

Answer: D

Difficulty: Difficult

AACSB: Application of knowledge

29) "Shoppers" constitute approximately \_\_\_\_\_ % of the online Internet audience.

- A) 60
- B) 70
- C) 80
- D) 90

Answer: D

Difficulty: Moderate

AACSB: Application of knowledge

30) A Crayola arts-and-crafts column on a parenting Web site is an example of what form of advertising?

- A) sponsorship
- B) banner swapping
- C) affiliate relationship
- D) public relations

Answer: A

Difficulty: Moderate

AACSB: Application of knowledge

31) Which of the following is the top concern of Internet users about purchasing online?

- A) inability to see and touch before buying
- B) difficulty of returning products
- C) shipping costs
- D) lack of trust in the purchase process

Answer: D

Difficulty: Moderate

AACSB: Application of knowledge

32) Studies of the effects of social "connectedness" on Internet purchases indicate that the more "connected" an individual:

- A) the less purchasing that individual does.
- B) the less that individual is influenced by friends' purchases.
- C) the more that individual shares purchasing decisions with friends.
- D) the more purchasing that individual does.

Answer: B

Difficulty: Moderate

AACSB: Application of knowledge

33) A typical response rate for an e-mail campaign would be \_\_\_\_\_ %.

- A) 2
- B) 5
- C) 25
- D) 50

Answer: B

Difficulty: Moderate

AACSB: Application of knowledge

34) In modeling online consumer behavior, the concept of "consumer skills" refers to the:

- A) education level of the consumer.
- B) communication skills of the consumer.
- C) knowledge consumers have about how to conduct online transactions.
- D) product evaluation skills of the consumer.

Answer: C

Difficulty: Moderate

AACSB: Application of knowledge

35) Which of the following statements about CAN-SPAM is *not* true?

- A) CAN-SPAM went into effect in January 2004.
- B) CAN-SPAM prohibits unsolicited e-mail (spam).
- C) CAN-SPAM prohibits the use of deceptive subject lines and false headers.
- D) Large spammers are among CAN-SPAM's biggest supporters.

Answer: B

Difficulty: Moderate

AACSB: Application of knowledge

36) Approximately \_\_\_\_\_ of annual offline retail sales is influenced by online browsing.

- A) one-quarter
- B) one-third
- C) one-half
- D) three-quarters

Answer: B

Difficulty: Moderate

AACSB: Application of knowledge

37) Which of the following is the most important tool in establishing a relationship with the customer?

- A) company Web site
- B) company CRM system
- C) Facebook
- D) search engine display ads

Answer: A

Difficulty: Moderate

AACSB: Application of knowledge

38) Impressions are a measure of the:

- A) number of times an ad is clicked.
- B) number of times an ad is served.
- C) number of http requests.
- D) number of pages viewed.

Answer: B

Difficulty: Moderate

AACSB: Application of knowledge

39) View-through rate measures the \_\_\_\_\_ response rate to an ad.

- A) 30-minute
- B) 24-hour
- C) 7-day
- D) 30-day

Answer: D

Difficulty: Moderate

AACSB: Application of knowledge

40) Which of the following is *not* one of the main elements of a comprehensive multi-channel marketing plan?

- A) local marketing
- B) offline marketing
- C) social marketing
- D) mobile marketing

Answer: A

Difficulty: Moderate

AACSB: Application of knowledge

41) Hits are a measure of the:

- A) number of times an ad is clicked.
- B) number of times an ad is served.
- C) number of http requests.
- D) number of pages viewed.

Answer: C

Difficulty: Moderate

AACSB: Application of knowledge

- 42) Which of the following statements about the Internet's impact on marketing is *not* true?
- A) The Internet has broadened the scope of marketing communications.
  - B) The Internet has decreased the impact of brands.
  - C) The Internet has increased the richness of marketing communications.
  - D) The Internet has expanded the information intensity of the marketplace.

Answer: B

Difficulty: Difficult

AACSB: Application of knowledge

- 43) Which of the following features of e-commerce technology has reduced the cost of delivering marketing messages and receiving feedback from users?

- A) ubiquity
- B) richness
- C) interactivity
- D) universal standards

Answer: D

Difficulty: Moderate

AACSB: Application of knowledge

- 44) Which of the following features of e-commerce technology allows fine-grained, highly detailed information on consumers' real-time behavior to be gathered and analyzed?

- A) personalization/customization
- B) information density
- C) social technology
- D) interactivity

Answer: B

Difficulty: Moderate

AACSB: Application of knowledge

- 45) The richness made possible by e-commerce technologies does which of the following?

- A) It reduces the cost of delivering marketing messages and receiving feedback from users.
- B) It allows consumers to become co-producers of the goods and services being sold.
- C) It allows video, audio, and text to be integrated into a single marketing message and consuming experience.
- D) It enables worldwide customer service and marketing communications.

Answer: C

Difficulty: Moderate

AACSB: Application of knowledge

- 46) For a Web site that has 5 million visitors a month, and where on average, a visitor makes 10 page requests per visit, there will be \_\_\_\_\_ entries in the transaction log each month.

- A) 50
- B) 500,000
- C) 5 million
- D) 50 million

Answer: D

Difficulty: Moderate

AACSB: Information technology

- 47) Purchasing an online ad on a CPA basis means that the advertiser:
- A) pays for impressions in 1,000 unit lots.
  - B) pays a prenegotiated fee for each click an ad receives.
  - C) pays only for those users who perform a specific action, such as registering, purchasing, etc.
  - D) exchanges something of equal value for the ad space.

Answer: C

Difficulty: Moderate

AACSB: Application of knowledge

- 48) All of the following statements about cookies are true *except*:
- A) cookies can be used with Web bugs to create cross-site profiles of users.
  - B) the data typically stored in cookies includes a unique ID and e-mail address.
  - C) cookies make shopping carts possible by allowing a site to keep track of a user's actions.
  - D) the more cookies are deleted, the less accurate ad server metrics become.

Answer: B

Difficulty: Moderate

AACSB: Information technology

- 49) A Web beacon is:
- A) a cookie that carries a virus.
  - B) an executable cookie.
  - C) an automated applet for performing Web searches.
  - D) a tiny graphics file embedded in an e-mail or Web page.

Answer: D

Difficulty: Easy

AACSB: Application of knowledge

- 50) \_\_\_\_\_ is an industry-standard database query and manipulation language.

- A) SQL
- B) PHP
- C) DBMS
- D) JSP

Answer: A

Difficulty: Easy

AACSB: Information technology

- 51) All of the following are traditional online marketing tools *except*:

- A) affiliate marketing.
- B) e-mail and permission marketing.
- C) social marketing.
- D) sponsorship marketing.

Answer: C

Difficulty: Moderate

AACSB: Application of knowledge

- 52) Which of the following examples illustrates the "Long Tail" phenomenon?
- A) Rhapsody music streaming service reported that its no play rate had increased to over 20%.
  - B) The number of blockbuster "winner take all" video titles is declining.
  - C) Over 50% of Netflix's 100,000 titles are rented at least once a day by someone.
  - D) The average blog has a readership of slightly more than 1.

Answer: C

Difficulty: Difficult

AACSB: Analytical thinking

- 53) A \_\_\_\_\_ is a repository of customer information that records all of the contacts that a customer has with a firm and generates a customer profile available to everyone in the firm with a need to know the customer.

- A) customer service chat system
- B) CRM system
- C) data warehouse
- D) transactive content system

Answer: B

Difficulty: Easy

AACSB: Information technology

- 54) Which of the following measures the average length of stay at a Web site?

- A) loyalty
- B) stickiness
- C) recency
- D) retention rate

Answer: B

Difficulty: Moderate

AACSB: Application of knowledge

- 55) Acquisition rate is a measure of the:

- A) percentage of visitors who indicate an interest in a site's products by registering or visiting a product's pages.
- B) percentage of visitors who become customers.
- C) percentage of existing customers who continue to buy on a regular basis.
- D) percentage of shoppers who do not return within a year after their initial purchase.

Answer: A

Difficulty: Moderate

AACSB: Application of knowledge

- 56) The marketing technique known as \_\_\_\_\_ involves merchants offering products or services for a very low price for a short period of time.

- A) search engine marketing
- B) flash marketing
- C) yield management
- D) bait-and-switch

Answer: B

Difficulty: Moderate

AACSB: Application of knowledge

57) Recency refers to the:

- A) percentage of customers who do not return during the next year after an initial purchase.
- B) time elapsed since the last action taken by a customer.
- C) percentage of existing customers who continue to buy on a regular basis.
- D) percentage of customers who return to the site within a year to make additional purchases.

Answer: B

Difficulty: Moderate

AACSB: Application of knowledge

58) Which of the following is *not* a feature that is driving the growth of social marketing and advertising?

- A) social sign-on
- B) network notification
- C) collaborative shopping
- D) affiliate programs

Answer: D

Difficulty: Moderate

AACSB: Application of knowledge

59) Conversion rate is a measure of the:

- A) percentage of visitors who indicate an interest in a site's products by registering or visiting a product's pages.
- B) percentage of visitors who become customers.
- C) percentage of existing customers who continue to buy on a regular basis.
- D) percentage of shoppers who do not return within a year after their initial purchase.

Answer: B

Difficulty: Moderate

AACSB: Application of knowledge

60) Which of the following measures the ratio of items purchased to product views?

- A) conversion rate
- B) cart conversion rate
- C) browse-to-buy ratio
- D) view-to-cart ratio

Answer: C

Difficulty: Moderate

AACSB: Application of knowledge

61) The Nike iD program is an example of which of the following marketing techniques?

- A) customer co-production
- B) transactive content
- C) price discrimination
- D) permission marketing

Answer: A

Difficulty: Moderate

AACSB: Application of knowledge

62) The incremental cost of building the next unit of a good is called the:

- A) demand curve.
- B) variable cost.
- C) marginal cost.
- D) fixed cost.

Answer: C

Difficulty: Moderate

AACSB: Application of knowledge

63) Which of the following statements about a free pricing strategy is false?

- A) Free products and services can knock out potential and actual competitors.
- B) The free pricing strategy was born in the early days of the Web.
- C) It is difficult to convert free customers into paying customers.
- D) Free products and services can help build market awareness.

Answer: B

Difficulty: Moderate

AACSB: Application of knowledge

64) Creating multiple variations of information goods and selling these to different market segments at different prices is called:

- A) bundling.
- B) customization.
- C) dynamic pricing.
- D) versioning.

Answer: D

Difficulty: Moderate

AACSB: Application of knowledge

65) All of the following are fixed price strategies *except*:

- A) bundling.
- B) versioning.
- C) free pricing.
- D) yield management.

Answer: D

Difficulty: Moderate

AACSB: Application of knowledge

66) In a(n) \_\_\_\_\_ search, the inclusion and ranking of Web sites depends on a more or less "unbiased" application of a set of rules (an algorithm) imposed by the search engine.

Answer: organic

Difficulty: Moderate

AACSB: Application of knowledge

67) Google's AdSense is an example of network keyword or \_\_\_\_\_ advertising.

Answer: context

Difficulty: Moderate

AACSB: Application of knowledge

68) \_\_\_\_\_ behavior refers to the transaction log that consumers establish as they move about the Web from site to site.

Answer: Clickstream

Difficulty: Moderate

AACSB: Application of knowledge

69) The \_\_\_\_\_ asserts that, with complete price transparency in a perfect information marketplace, one world price for every product will emerge.

Answer: Law of One Price

Difficulty: Moderate

AACSB: Application of knowledge

70) A common form of \_\_\_\_\_ is targeted content (or advertorials), in which editorial content is combined with an ad message to make the message more valuable and attractive to its intended audience.

Answer: sponsorship

Difficulty: Moderate

AACSB: Application of knowledge

71) \_\_\_\_\_ ads involves showing the same or similar ad to individuals across multiple Web sites.

Answer: Retargeting

Difficulty: Moderate

AACSB: Application of knowledge

72) Adjustments to a Web site's programming and content in order to improve its rank in search engine results is called search engine \_\_\_\_\_.

Answer: optimization

Difficulty: Easy

AACSB: Application of knowledge

73) \_\_\_\_\_ rate measures the percentage of customers who purchase once but never return within a year.

Answer: Attrition

Difficulty: Moderate

AACSB: Application of knowledge

74) To answer a question such as "At what time of day does our company sell the most products?" you would use \_\_\_\_\_ data mining.

Answer: query-driven

Difficulty: Moderate

AACSB: Information technology

75) Specialized marketing firms called \_\_\_\_\_ sell ad opportunities from a range of participating sites that receive payment for displaying ads.

Answer: advertising networks

Difficulty: Moderate

AACSB: Application of knowledge

76) In \_\_\_\_\_, one Web site agrees to pay another Web site a commission for new business opportunities it refers to the site.

Answer: affiliate marketing

Difficulty: Moderate

AACSB: Application of knowledge

77) \_\_\_\_\_ is the process of getting customers to pass along a company's marketing message to friends, family, and colleagues.

Answer: Viral marketing

Difficulty: Moderate

AACSB: Application of knowledge

78) The \_\_\_\_\_ rate is an e-mail campaign metric that measures the percentage of e-mails that could not be delivered.

Answer: bounce-back

Difficulty: Moderate

AACSB: Application of knowledge

79) \_\_\_\_\_ use a real-time bidding process in which marketers bid for slots based on their marketing criteria.

Answer: Ad exchanges

Difficulty: Moderate

AACSB: Application of knowledge

80) \_\_\_\_\_ occurs when a new venue for selling products or services threatens to destroy existing venues.

Answer: Channel conflict

Difficulty: Difficult

AACSB: Application of knowledge

81) What is Web analytics software and what is it used for?

Answer: Web analytics is a software package that collects, stores, analyzes, and graphically presents data on each of the stages in the conversion of shoppers to customers process on e-commerce sites. Web analytics packages help business managers optimize the return on investment on their Web sites and social marketing efforts, by building a detailed understanding of how consumers behave when visiting their Web sites. They help analyze where customers come from, what they do on the site, and which content is most appealing, as well as how users shop, add to their shopping cart, and whether they abandon their shopping cart. Web analytics also allows managers to measure the impact of specific marketing campaigns.

Difficulty: Moderate

AACSB: Analytical thinking; Information technology; Written and oral communication

82) Discuss the revolution in Internet marketing technologies. What are the four main broad impacts the Internet has had on marketing?

Answer: The Internet has had three broad impacts on marketing. First, the Internet as a communications medium has broadened the scope of marketing. Marketing messages can now easily reach a greater number of people. Second, the Internet has increased the richness of marketing communications by combining text, video, and audio content into rich messages. Some even think that the Web is a richer medium than television or video because of the complexity of messages and the huge amount of, and wide ranging, content that is available. Third, the Internet has greatly expanded the information intensity of the marketplace by providing marketers with fine-grained, detailed, real-time information about consumers as they transact in the marketplace. Fourth, the always-on, always-attached, environment created by mobile devices results in consumers being much more available to receive marketing messages. One result is an extraordinary expansion in marketing opportunities for firms.

Difficulty: Moderate

AACSB: Analytical thinking; Information technology; Written and oral communication

83) What are Web transaction logs, and how do they work in combination with registration forms, shopping cart databases, and tracking files to help firms understand how customers behave online?

Answer: Transaction logs, which are built into Web server software, record user activity at a Web site. Log file analysis tools cull information from these files, which can contain tens to hundreds of entries for each user. Transaction log data becomes more useful when it is combined with registration form data and shopping cart data. Registration forms and shopping cart database are two other visitor generated data trails. Merchants use registration forms to gather personal data such as the name, address, phone number, zip code, e-mail address, and other optional information on the tastes and interests of the consumer. The shopping cart database captures all the item selection, purchase, and payment data. The data from transaction logs, registration forms, and the shopping cart database can also be combined with other information that users submit on product forms, contribute in chat rooms, or submit via e-mail messages to a firm to produce a veritable treasure trove of information for both individual merchant sites and for the industry as a whole.

Although the transaction log represents the foundation of online data collection, it is supplemented by the use of cookies that are placed on a user's hard drive when he or she visits a site. Cookies allow a Web site to store data on a user's machine that can be retrieved later. Cookies provide Web marketers with a very quick means to identify each customer and to understand his or her prior behavior at the site. Cookies can be used to determine how many people are visiting a site, how many are repeat visitors, and how often they have visited. They also make shopping cart and quick checkout possible by allowing a site to keep track of a user as he or she adds to the shopping cart. Cookies can be combined with Web bugs to create cross-site profiles. Web beacons (sometimes called Web bugs) are graphic files that are embedded in e-mails and on Web sites. When a user opens an HTML format e-mail with an embedded Web beacon, a request is sent to the server for the graphic data. Web beacons are used to automatically transmit information about the user and the page being viewed to a monitoring server in order to collect personal browsing behavior and other personal information.

Difficulty: Moderate

AACSB: Analytical thinking; Information technology; Written and oral communication

84) Define and describe the functionality of customer relationship management (CRM) systems.

Answer: Customer relationship management systems are an important Internet marketing technology. They serve as repositories for customer information that records all of the contacts a customer has with a firm including its Web site. CRM systems can generate a profile of each customer that is available to everyone in the firm who requests the data and they contain analytical software that will make this data valuable to the firm.

In the past, firms generally did not maintain a single storehouse of customer information, and any customer data was organized along product lines with each product line maintaining a separate customer list. CRMs are part of the evolution towards customer-centric and segmented market-based businesses, and away from this product-based model.

CRMs use database technology with capabilities for assessing the needs of individual customers and differentiating products to meet those needs. The customer profiles generated by a CRM can include a map of the customer's relationship with the firm, the products he or she has bought and the frequency of purchases, the demographic and psychographic profile for each customer, profitability measures, a complete contact history, and marketing and sales information containing marketing campaigns that the customer received and the customer's responses to them.

With these profiles, CRMs can be used to sell additional products and services, develop new products, increase product utilization, reduce marketing costs, identify and retain profitable customers, optimize service delivery costs, retain high lifetime value customers, enable personal communications, improve customer loyalty, and increase product profitability.

Difficulty: Moderate

AACSB: Analytical thinking; Information technology; Written and oral communication

85) Identify and describe the various types of rich media ads and video ads and explain how each one works.

Answer: Rich media ads employ Flash, HTML5, Java, JavaScript, and animation, sound, and interactivity. These ads tend to be more about branding than sales. One type of rich media ad is an interstitial.

An interstitial ad places a full-page message between the current and destination pages of a user. Interstitials are usually inserted within a single Web site and displayed as the user moves from one page to the next. The interstitial typically lasts 10 seconds or less, then moving automatically to the page the user requested. Interstitials can also be deployed over an advertising network and appear as users move among Web sites.

There are four main types of video ads. Linear video ads take over the currently playing video for a certain period of time. Nonlinear video ads run at the same time as currently playing video content and do not take over the screen. In-banner video ads are triggered by the user mousing over part of a banner ad and may expand to cover more area of the screen than the banner. Finally, in-text video ads are delivered when the user mouses over relevant text.

Difficulty: Moderate

AACSB: Analytical thinking; Information technology; Written and oral communication

86) Discuss four features of social e-commerce that are driving its growth.

Answer: Four features of social e-commerce that are driving its growth are the following:

(1) Social sign-on: Signing in to various Web sites through social networks pages such as Facebook. This allows Web sites to receive valuable social profile information from Facebook and use it in their own marketing efforts.

(2) Collaborative shopping: Creating an environment where consumers can share their shopping experiences with one another by viewing products, chatting, or texting.

(3) Network notification: Creating an environment where consumers can share their approval or disapproval of products, services, or content or share their geolocation with friends. Facebook's Like button is an example of this, as are Twitter tweets and followers.

(4) Social search (recommendation): Enabling an environment where consumers can ask their friends for advice on purchases of products, services, and content. For example, Amazon's social recommender system can use Facebook social profiles to recommend products.

Difficulty: Moderate

AACSB: Analytical thinking; Information technology; Written and oral communication

***E-Commerce 2014, 10e (Laudon/Traver)***  
**Chapter 7 E-commerce Marketing Communications**

1) By 2012, social marketing had overtaken mobile marketing.

Answer: FALSE

Difficulty: Easy

AACSB: Application of knowledge

2) By 2015, it is estimated that mobile marketing spending will account for around \$16 billion annually.

Answer: TRUE

Difficulty: Moderate

AACSB: Application of knowledge

3) Traditional desktop marketing remains the largest part of all online marketing.

Answer: TRUE

Difficulty: Moderate

AACSB: Application of knowledge

4) Facebook has more unique monthly visitors than LinkedIn, Twitter, Pinterest, Tumblr, and Instagram combined.

Answer: FALSE

Difficulty: Moderate

AACSB: Application of knowledge

5) It is possible to opt-out of Facebook's Graph Search.

Answer: FALSE

Difficulty: Moderate

AACSB: Information technology

6) Facebook does not sell display ads.

Answer: FALSE

Difficulty: Easy

AACSB: Application of knowledge

7) Brand pages on Facebook typically attract more visitors than a brand's Web site.

Answer: TRUE

Difficulty: Moderate

AACSB: Application of knowledge

8) Promoted Tweets are Twitter's version of Google's Ad Words.

Answer: TRUE

Difficulty: Moderate

AACSB: Application of knowledge

9) Pinterest's visitors are predominantly women.

Answer: TRUE

Difficulty: Easy

AACSB: Application of knowledge

10) It is expected that by 2017, mobile commerce will account for 50% of all e-commerce.

Answer: FALSE

Difficulty: Moderate

AACSB: Application of knowledge

11) About 25% of all search engine requests originate from mobile devices.

Answer: TRUE

Difficulty: Moderate

AACSB: Application of knowledge

12) Mobile users spend most of their time browsing mobile Web sites.

Answer: FALSE

Difficulty: Moderate

AACSB: Application of knowledge

13) Google provides the leading location-based marketing platform.

Answer: TRUE

Difficulty: Moderate

AACSB: Application of knowledge

14) A cell phone's GPS is accurate to within 5 feet of the actual location of the phone.

Answer: FALSE

Difficulty: Moderate

AACSB: Information technology

15) Text message generates the majority of mobile marketing spending.

Answer: FALSE

Difficulty: Moderate

AACSB: Application of knowledge

16) All of the following were popular types of online marketing before 2007 *except*:

- A) e-mail.
- B) corporate Web sites.
- C) mobile marketing.
- D) display ads.

Answer: B

Difficulty: Moderate

AACSB: Application of knowledge

17) Which of the following is *not* true about social marketing?

- A) In 2013, marketers will spend almost twice as much on social marketing as they do on mobile marketing.
- B) Social marketing is growing at around 30% a year.
- C) By 2015, it is estimated that social marketing spending will be just over \$6 billion dollars.
- D) More than 25% of Facebook visits originate from a mobile device.

Answer: A

Difficulty: Difficult

AACSB: Application of knowledge

18) Which of the following is *not* true about mobile marketing?

- A) Mobile marketing is the fastest growing form of online marketing.
- B) Mobile marketing is growing at around 50% a year.
- C) A substantial part of mobile marketing should be counted as social marketing.
- D) By 2015, it is estimated that spending on social marketing will exceed the amount spent on mobile marketing.

Answer: D

Difficulty: Difficult

AACSB: Application of knowledge

19) The second most popular social network in terms of average minutes per visitor is:

- A) Google+.
- B) Pinterest.
- C) LinkedIn.
- D) Tumblr.

Answer: D

Difficulty: Moderate

AACSB: Application of knowledge

20) Which of the following purchased Tumblr in May 2013?

- A) Facebook
- B) Yahoo
- C) Google

D) Twitter

Answer: B

Difficulty: Easy

AACSB: Application of knowledge

21) Which of the following is the first step in the social marketing process?

A) community

B) amplification

C) fan acquisition

D) engagement

Answer: C

Difficulty: Easy

AACSB: Application of knowledge

22) Encouraging users to click a Like button is an example of which step in the social marketing process?

- A) fan acquisition
- B) brand strength
- C) community
- D) amplification

Answer: D

Difficulty: Moderate

AACSB: Application of knowledge

23) Your Facebook News Feed includes all of the following *except*:

- A) status updates.
- B) app activity.
- C) Likes.
- D) tweets.

Answer: D

Difficulty: Easy

AACSB: Application of knowledge

24) Which of the following statements about Graph Search is *not* true?

- A) It relies on Google to supplement its search results.
- B) It is a semantic search engine.
- C) It is a social search engine.
- D) It includes photos.

Answer: A

Difficulty: Difficult

AACSB: Information technology

25) Facebook's display ads are called:

- A) Marketplace Ads.
- B) Promoted Ads.
- C) Sponsored Ads.
- D) Brand Ads.

Answer: A

Difficulty: Easy

AACSB: Application of knowledge

26) Which of the following do Facebook users spend the most time on?

- A) News Feed
- B) Photos
- C) Profiles
- D) Graph Search

Answer: A

Difficulty: Moderate

AACSB: Application of knowledge

27) Which of the following is a real-time feed showing a friend's activities, chats, and music listening on Facebook?

- A) News Feed
- B) Timeline
- C) Ticker
- D) Social Graph

Answer: C

Difficulty: Moderate

AACSB: Information technology

28) Which of the following statements is *not* true?

- A) About 30% of Facebook's ad revenue in 2013 is expected to come from its mobile ad platform.
- B) Facebook Home is Facebook's app for iOS devices.
- C) Mobile ads are displayed in users' News Feeds.
- D) Facebook's mobile ad revenues are growing at an estimated 40% in 2013.

Answer: B

Difficulty: Difficult

AACSB: Application of knowledge

29) All of the following marketing tools on Facebook require payment *except*:

- A) Facebook Offers.
- B) Sponsored Stories.
- C) Promoted Posts.
- D) Marketplace Ads.

Answer: A

Difficulty: Moderate

AACSB: Application of knowledge

30) The ratio of impressions to fans is a measure of:

- A) engagement.
- B) amplification.
- C) community.
- D) fan acquisition.

Answer: D

Difficulty: Moderate

AACSB: Application of knowledge

31) Which of the following provides marketers with a real-time digital dashboard so they can see tweet activity about a TV show, commercial, or brand?

- A) Enhanced Profile Pages
- B) Amplify
- C) Lead Generation Cards
- D) Promoted Accounts

Answer: B

Difficulty: Moderate

AACSB: Application of knowledge

32) Which of the following involves a coupon or other promotional offer that appears in users' Twitter timeline?

- A) Promoted Tweet
- B) Promoted Trend
- C) Promoted Account
- D) Lead Generation Card

Answer: D

Difficulty: Moderate

AACSB: Application of knowledge

33) Which of the following statements about Pinterest is *not* true?

- A) Pinned photos and photo boards are available to all Pinterest users.
- B) Pinterest users are overwhelmingly female.
- C) Pinterest enables users to integrate their pins into their Facebook News Feeds and Twitter streams.
- D) About 30% of online adults use Pinterest.

Answer: D

Difficulty: Difficult

AACSB: Application of knowledge

34) Which of the following are features of both Pinterest and Twitter?

- A) tweets
- B) hashtags
- C) pins
- D) Image Hover widget

Answer: B

Difficulty: Moderate

AACSB: Information technology

35) All of the following are Pinterest marketing tools *except*:

- A) Brand pages.
- B) Follow button.
- C) Retail Pins.
- D) Promoted Accounts.

Answer: D

Difficulty: Moderate

AACSB: Application of knowledge

36) The number of people exposed to pins is a measure of which of the following?

- A) engagement
- B) community
- C) brand strength
- D) fan acquisition

Answer: D

Difficulty: Moderate

AACSB: Application of knowledge

37) Which of the following is an online service specifically aimed at measuring the impact of Pinterest and other visual social media?

- A) TweetDeck
- B) Curalate
- C) Amplify
- D) Webtrends

Answer: B

Difficulty: Moderate

AACSB: Information technology

38) In 2013, mobile commerce revenues are approximately:

- A) \$39 million.
- B) \$390 million.
- C) \$3.9 billion.
- D) \$39 billion.

Answer: D

Difficulty: Moderate

AACSB: Application of knowledge

39) By 2017, mobile commerce revenues are expected to be approximately:

- A) \$109 million.
- B) \$1.09 billion.
- C) \$10.9 billion.
- D) \$109 billion.

Answer: D

Difficulty: Moderate

AACSB: Application of knowledge

40) Which of the following statements is *not* true?

- A) Desktop search revenues are increasing for Google.
- B) Mobile ads account for only 16% of Google's overall ad revenue.
- C) Mobile search ads generate about \$8 billion a year for Google.
- D) Google charges more for desktop ads than it charges for mobile ads.

Answer: A

Difficulty: Difficult

AACSB: Application of knowledge

41) Which of the following is the most popular use for mobile devices?

- A) shopping
- B) socializing
- C) entertainment
- D) performing tasks, such as finances

Answer: C

Difficulty: Moderate

AACSB: Application of knowledge

42) Which of the following statements about the use of tablets is *not* true?

- A) About 50% of the American Internet population now uses tablets.
- B) The number of smartphone users is still growing faster than the number of tablet users.
- C) The growth rate of tablet users is expected to slow by 2015.
- D) Tablets are the largest source of mobile commerce revenues.

Answer: B

Difficulty: Difficult

AACSB: Application of knowledge

43) Which type of apps account for the most user time?

- A) social network apps
- B) brand apps
- C) game and entertainment apps
- D) search apps

Answer: C

Difficulty: Moderate

AACSB: Information technology

44) Which of the following dominates mobile advertising?

- A) Facebook
- B) Apple
- C) Twitter
- D) Google

Answer: D

Difficulty: Moderate

AACSB: Application of knowledge

45) Which of the following is the leading display ad site on mobile devices?

- A) Facebook
- B) Yahoo
- C) Google
- D) Twitter

Answer: A

Difficulty: Moderate

AACSB: Application of knowledge

46) Which of the following accounts for the most mobile ad spending?

- A) display ads
- B) search engine advertising
- C) video ads
- D) SMS text messages

Answer: B

Difficulty: Moderate

AACSB: Application of knowledge

47) Which of the following statements is *not* true?

- A) Mobile shoppers and buyers are more affluent than the online population in general.
- B) Men are more likely than women to buy digital content with a mobile device.
- C) Women are more active purchasers on smartphones than men.
- D) Younger consumers are more likely to research products and prices on mobile devices than older consumers.

Answer: C

Difficulty: Difficult

AACSB: Application of knowledge

48) Which of the following is another term for amplification?

- A) impressions
- B) reach
- C) conversation rate
- D) conversion ratio

Answer: B

Difficulty: Moderate

AACSB: Application of knowledge

49) The newest and fastest growing segment of the digital marketing universe is:

- A) Twitter marketing.
- B) location-based mobile marketing.
- C) Pinterest marketing.
- D) Facebook marketing.

Answer: B

Difficulty: Easy

AACSB: Application of knowledge

50) In 2013, location-based mobile marketing accounted for how much in marketing expenditures?

- A) \$23 million
- B) \$230 million
- C) \$2.3 billion

D) \$23 billion

Answer: C

Difficulty: Moderate

AACSB: Application of knowledge

51) Which of the following earns the most location-based marketing revenue?

A) Twitter

B) Apple

C) Facebook

D) Google

Answer: D

Difficulty: Easy

AACSB: Application of knowledge

52) Miller Coors used which of the following techniques to alert Blue Moon beer fans as to where it could be purchased?

- A) Geo-social based services
- B) Geo-fencing
- C) E9-1-1
- D) Geo-search

Answer: B

Difficulty: Moderate

AACSB: Application of knowledge

53) Display ads constitute about \_\_\_\_\_ % of mobile ad spending.

- A) 15
- B) 20
- C) 33
- D) 66

Answer: C

Difficulty: Moderate

AACSB: Application of knowledge

54) SMS to friends, notifying friends of your location, and sharing offers with friends are ways to measure:

- A) fan acquisition.
- B) engagement.
- C) community.
- D) amplification.

Answer: D

Difficulty: Moderate

AACSB: Application of knowledge

55) What percentage of smartphone users have used their phones for proximity searches on information like local weather?

- A) 33%
- B) 50%
- C) 75%
- D) 95%

Answer: D

Difficulty: Moderate

AACSB: Application of knowledge

56) Facebook's share price fell dramatically after its IPO because investors feared that:

- A) Facebook's new marketing solutions would be difficult to monetize.
- B) new social networks such as Instagram were cannibalizing Facebook's audience.
- C) privacy concerns were driving users away.
- D) Facebook would be unable to increase advertising revenues enough.

Answer: D

Difficulty: Moderate

AACSB: Application of knowledge

57) Facebook's marketing success on both desktop and mobile platforms is based on:

- A) the sale of user clickstream data.
- B) ads inserted into users' News Feeds.
- C) ads targeted through Facebook's Open Graph and Graph Search tools.
- D) fees for Brand Pages and other specialized business marketing tools.

Answer: B

Difficulty: Moderate

AACSB: Application of knowledge

58) Surveys have found that the *least* influential online marketing format for driving consumers to purchase is:

- A) the retailer's Web site.
- B) display ad campaigns.
- C) social networks.
- D) e-mail campaigns.

Answer: C

Difficulty: Moderate

AACSB: Application of knowledge

59) How does Google Analytics track user behavior at a participating Web site?

- A) cookies
- B) beacons
- C) server logs
- D) super cookies

Answer: B

Difficulty: Difficult

AACSB: Application of knowledge

60) Which analytics tool did Fairmont Hotel use to measure the effectiveness of its online marketing and advertising?

- A) WebTrends
- B) IBM Digital Analytics
- C) Google Analytics
- D) A custom Hadoop solution

Answer: C

Difficulty: Moderate

AACSB: Application of knowledge

61) Companies are not permitted to collect personal information from children under the age of \_\_\_\_\_ without parental consent.

- A) 8
- B) 10
- C) 13
- D) 16

Answer: C

Difficulty: Moderate

AACSB: Application of knowledge

62) Which children's Web site was fined \$3 million in 2011 for collecting and sharing children's personal information without consent of their parents?

- A) Disney's Playdom
- B) Emily's Dress Up
- C) Nick Jr.
- D) NeoPets

Answer: B

Difficulty: Moderate

AACSB: Application of knowledge

63) How can a smartphone's gyroscope and accelerometer be used in product marketing?

- A) to speed up delivery of large multimedia files
- B) to locate the user's geographical position
- C) to enhance user interaction with mobile multimedia
- D) to provide accurate data on the user's destination and speed

Answer: C

Difficulty: Moderate

AACSB: Application of knowledge

64) Which social marketing proved the most effective for ExchangeHunterJumper.com?

- A) Facebook
- B) YouTube
- C) Pinterest
- D) Instagram

Answer: A

Difficulty: Moderate

AACSB: Application of knowledge

65) Which of the following most helped Dagny Aslin of ExchangeHunterJumper.com in establishing her brand in the niche area of selling high-end competition horses?

- A) integrating online and offline marketing techniques to establish a consistent brand
- B) adapting marketing techniques to keep up with new Internet technologies
- C) valuing quality over quantity at each stage in the Web site development process
- D) establishing customer needs and habits as the top priority in all marketing decisions

Answer: D

Difficulty: Difficult

AACSB: Analytical thinking

66) \_\_\_\_\_ refers to the number of interactions among members of a group and reflects the "connectedness" of the group, even if these connections are forced on users..

Answer: Social density

Difficulty: Moderate

AACSB: Application of knowledge

67) A \_\_\_\_\_ is a post on Facebook about a friend's activity that an advertiser has paid to have distributed to your News Feeds.

Answer: Sponsored Story

Difficulty: Moderate

AACSB: Application of knowledge

68) \_\_\_\_\_ is a real-time bidding system that allows advertisers to target their ads to specific users based on personal information provided by Facebook.

Answer: Facebook Exchange, FBX

Difficulty: Moderate

AACSB: Application of knowledge

69) \_\_\_\_\_ targets marketing messages to users based on their location.

Answer: Location-based marketing

Difficulty: Moderate

AACSB: Application of knowledge

70) \_\_\_\_\_ techniques identify the location of a user's device and then target marketing to the device, recommending actions within the area.

Answer: Geo-aware

Difficulty: Moderate

AACSB: Information technology

71) \_\_\_\_\_ techniques identify a perimeter around a physical location and then target ads to users within that perimeter.

Answer: Geo-fencing

Difficulty: Moderate

AACSB: Information technology

72) \_\_\_\_\_ involves using any of a variety of means to attract people to your Web site and other social marketing platforms, such as Facebook and Twitter.

Answer: Fan acquisition

Difficulty: Moderate

AACSB: Application of knowledge

73) \_\_\_\_\_ involves using a variety of tools to encourage users to interact with content and brand.

Answer: Engagement

Difficulty: Moderate

AACSB: Application of knowledge

74) \_\_\_\_\_ involves using the inherent strength of social networks to encourage visitors and fans to share their Likes and comments with friends.

Answer: Amplification

Difficulty: Moderate

AACSB: Application of knowledge

75) \_\_\_\_\_ is a Facebook feature that allows app developers to integrate their apps into the Facebook pages of users who sign up for the app.

Answer: Open Graph

Difficulty: Moderate

AACSB: Information technology

76) Facebook's new search engine, introduced in July 2013, is called \_\_\_\_\_.

Answer: Graph Search

Difficulty: Easy

AACSB: Information technology

77) \_\_\_\_\_ is a micro-blogging social network site that allows users to send and receive 140-character messages.

Answer: Twitter

Difficulty: Easy

AACSB: Application of knowledge

78) A \_\_\_\_\_ organizes the conversations on Twitter around a specific topic, and enables users to search for tweets related to a particular topic.

Answer: hashtag, #

Difficulty: Moderate

AACSB: Information technology

79) The point of \_\_\_\_\_ is to share beautiful, interesting photos and graphics as widely as possible across the Web.

Answer: Pinterest

Difficulty: Easy

AACSB: Application of knowledge

80) \_\_\_\_\_ is the leading mobile retailer.

Answer: Amazon

Difficulty: Easy

AACSB: Application of knowledge

81) What has changed in online marketing since 2007?

Answer: Since 2007, Facebook and other social networking sites have grown rapidly, smartphones have taken the market by storm, and local marketing has taken off. Prior to 2007, online marketing consisted of creating a corporate Web site, buying display ads on Yahoo and purchasing AdWords on Google, and sending e-mail. The display ad was the most prevalent form of online advertising. "Eyeballs" were the primary measure of a site's success, and "impressions" were the measure of an advertising campaign's success. Today, marketing is based on businesses marketing themselves as partners in multiple online conversations with customers and critics. Marketing requires firms to locate and participate in conversations happening on social media. Businesses can no longer tightly control their brand messaging. In addition, in 2007, mobile marketing was in its infancy, but it is now more than double the size of social marketing and location-based marketing.

Difficulty: Moderate

AACSB: Analytical thinking; Written and oral communication

82) Name and describe the five steps in the social marketing process.

Answer: The five steps in the social marketing process are fan acquisition, engagement, amplification, community, and brand strength.

Social marketing campaigns begin with fan acquisition, which involves using any of a variety of means, from display ads to News Feed and page pop-ups, to attract people to your Facebook page, Twitter feed, or other platform like a Web page. The next step is to generate engagement, which involves using a variety of tools to encourage users to interact with your content and brand located on your Facebook or Web pages. You can think of this as "starting the conversation" around your brand.

Once you have engaged visitors, you can begin to use social site features to amplify your messages by encouraging users to tell their friends by clicking a Like or +1 button, or by sending a message to their followers on Twitter. Amplification involves using the inherent strength of social networks to continue the spread of its message. Once you have gathered enough engaged fans, you will have created the foundation for a community—a more or less stable group of fans who are engaged and communicating with one another over a substantial period of time (say several months or more). The ultimate goal is to enlarge your firm's "share of the online conversation." The process ends with strengthening the brand and, hopefully, additional sales of products and services.

Difficulty: Moderate

AACSB: Analytical thinking; Written and oral communication

83) Name and describe five of the marketing tools available with Facebook.

Answer: Some of the many marketing tools available via Facebook are Marketplace Ads, the News Feed, Brand Pages, Promoted Posts, Sponsored Stories, Like Buttons, mobile ads, and Facebook Exchange.

Marketplace Ads are display ads shown in the right column on a user's profile and home Facebook pages. Most are socially enabled, which provide opportunities for viewers to "Become a fan," "Like us on Facebook," share content with others, tweet, or pin a photo to Pinterest. Facebook can target Marketplace Ads based on users' past behavior and their friends' past behavior. For instance, users who have demonstrated an interest in skiing, and who have many friends who ski, are likely to be shown ads for ski travel packages. Marketplace Ads provide an opportunity for fan acquisition.

The News Feed is where Facebook users spend most of their time because that is where posts about their friends appear. The News Feed is the center of the action for Facebook users. There are several ways for a firm to appear in users' News Feeds. Unpaid "stories about friends" describe how a friend has actively engaged with a brand. However, paid brand messages can also be inserted into the News Feed or just to the right of the News Feed (these are also called "Premium Ads"), where they may receive more attention than Marketplace Ads. These also provide an opportunity for fan acquisition.

Nearly all Fortune 1000 companies, and hundreds of thousands of smaller firms, have brand pages. Brand pages are similar to brand Web sites, but as the online audience has shifted towards Facebook as the primary online environment, firms have followed with brand pages on Facebook and other social networks as an adjunct to their "main" Web page on the Internet. The purpose of a brand page is to develop "fans" of the brand by providing users opportunities to interact with the brand through blogs, comments, contests, and offerings (Facebook Offers) on the brand page. Brand pages have "social" calls to action such as "Become a Fan," or "Like Us on Facebook." Brand pages provide engagement and community building opportunities for marketers.

Promoted Posts are ads that begin as posts but for which businesses pay a fee to get additional distribution among fans, friends of fans, or nonfriends in their News Feeds. Promoted Posts can provide a link to a Facebook brand page for a company, or show videos, special offers, and photos. Promoted Posts provide amplification for marketers.

Sponsored Stories are messages coming from friends (including businesses) about engaging with a page, post, app, or event that a business, organization, or individual has paid for to increase the chance people will see them. For instance, if you have been on Ford Motor Company's Facebook page and Liked a story about a car, then Ford can sponsor stories to your News Feed. Sponsored Stories also provide amplification for marketers.

The Like button enables users to share their feelings with friends and friends of friends about content and other objects they are viewing and Web sites they are visiting. The Like button provides amplification for marketers.

Facebook also offers mobile ads (its mobile ad platform is its fastest growing revenue stream), and Facebook Exchange, a real-time ad exchange, which enables marketers to sell ads and retarget ads.

Difficulty: Moderate

AACSB: Analytical thinking; Written and oral communication

84) What are the basic steps in creating a Pinterest marketing campaign?

Answer: The first step is to create a brand page and pin photos of your products, ensuring that you change your selections regularly and use high quality photos. Next, use URL links and keywords so that followers can easily find and buy the projects you have pinned. Use of hashtags helps organize your photos.

Creating a Pinterest Product pin helps businesses in certain industries that are cost competitive like food, retail, or movie distribution. Adding Pin It buttons also encourages followers to pin your photos to their own boards and share them with friends. Developing theme-based boards also enhances the entertainment and branding aspects of Pinterest.

Incorporating Facebook and Twitter into the campaign draws users from those networks onto Pinterest, and integrating with those services allows users to navigate seamlessly from Facebook and Twitter to Pinterest. Being active on social media is also important to get the most out of it.

Difficulty: Moderate

AACSB: Analytical thinking; Written and oral communication

85) How do people actually use their mobile devices today?

Answer: On average, U.S. mobile users spend an estimated 1660 minutes per month using their devices (excluding phone calls, text messages, and e-mail). Entertainment is the largest single use, at 52% of user time (860 minutes). This includes viewing movies, television shows, shorter videos, or reading a gossip column, as well as just browsing. Users spend 25% of their mobile time (410 minutes) socializing with others on social network sites or blogs. Shopping (looking for specific goods to buy) accounts for only 7% of users' time (126 minutes). Actual purchasing of goods and services using mobile devices involves an estimated 3% of user time. Other uses include performing tasks such as online banking and investing (8%), planning trips (4%), reading news and magazines (3%), and hobbies (1%). This does not mean that smartphones and tablets are not used to purchase goods (m-commerce). On the contrary, in the 7% of their mobile time consumers spend online, they generate \$39 billion in mobile-commerce sales, or about 15% of all retail and travel e-commerce (\$395 billion). The mobile platform itself is changing rapidly from one dominated by smartphones to one dominated by tablets. The number of tablet users, once the newcomer to the mobile platform, is growing faster than the number of smartphone users in the United States: 123 million Americans use tablets, about 50% of the Internet population, and their use is growing at about 30% annually although it will slow down to single digits by 2015. Tablets, with their larger screens, are the fastest growing and largest source of mobile commerce revenues.

Difficulty: Moderate

AACSB: Analytical thinking; Written and oral communication

86) What technologies and techniques are employed by location-based mobile marketing and why is local mobile attractive to marketers?

Answer: There are two general types of location-based marketing techniques: geo-aware and geo-fencing. Geo-aware techniques identify the location of a user's device and then target marketing to the device, recommending actions within. Geo-fencing techniques identify a perimeter around a physical location, and then target ads to users within that perimeter, recommending actions possible within the fenced-in area. The perimeter can be from hundreds of feet (in urban areas) to several miles (in suburban locations). For instance, if users walk into the geo-fenced perimeter of a store, restaurant, or retail shop, they will receive ads from these businesses. Both of these techniques utilize the same locating technologies. GPS is the most accurate positioning method in theory, but in practice, the signal can be weak in urban areas, nonexistent inside buildings, signals can be deflected, and it can take a long time (30—60 seconds) for the device to acquire the signal and calculate a position. Wi-Fi location is used in conjunction with GPS signals to more accurately locate a user based on the known location of Wi-Fi transmitters, which are fairly ubiquitous in urban and suburban locations.

Consumers who seek information about local businesses using mobile devices are much more active and ready to purchase than desktop users. In part this is because desktop searchers for local information are not in as close proximity to merchants as are mobile searchers. Three-quarters of mobile users are more likely to take action after seeing a relevant local ad.

Difficulty: Moderate

AACSB: Analytical thinking; Written and oral communication

1) Liability is a feature of political systems in which a body of law is in place that permits individuals to recover damages done to them by other actors, systems, or organizations.

Answer: TRUE

Difficulty: Moderate

AACSB: Ethical understanding and reasoning

2) The principle of responsibility means that individuals, organizations, and societies should be held accountable to others for the consequences of their actions.

Answer: FALSE

Difficulty: Moderate

AACSB: Ethical understanding and reasoning

3) The ethical principle of Universalism states that if an action is not right for all situations, then it is not right for any situation.

Answer: TRUE

Difficulty: Moderate

AACSB: Ethical understanding and reasoning

4) Deep packet inspection uses software installed on client computers to collect and analyze detailed information on page content viewed by users.

Answer: FALSE

Difficulty: Moderate

AACSB: Information technology

5) Most adult social network participants do not have any expectation of personal privacy when using a social network.

Answer: FALSE

Difficulty: Moderate

AACSB: Application of knowledge

6) The opt-in model for informed consent requires an affirmative action by the consumer before a company can collect and use information.

Answer: TRUE

Difficulty: Moderate

AACSB: Application of knowledge

7) The Children's Online Privacy Protection Act (COPPA) prohibits Web sites from collecting information on children under the age of 13.

Answer: TRUE

Difficulty: Moderate

AACSB: Application of knowledge

8) The European Data Protection Directive prohibits the transfer of PII to organizations or countries that do not have similar privacy protection policies.

Answer: TRUE

Difficulty: Moderate

AACSB: Application of knowledge

9) The FTC's privacy approach is now focused on targeting practices that are likely to cause harm or unwarranted intrusion into consumers' daily lives.

Answer: TRUE

Difficulty: Difficult

AACSB: Application of knowledge

10) Copyright protection protects against others copying the underlying ideas in a work.

Answer: FALSE

Difficulty: Moderate

AACSB: Application of knowledge

11) It is not necessarily illegal to use someone else's trademark in a metatag.

Answer: TRUE

Difficulty: Moderate

AACSB: Application of knowledge

12) Net neutrality refers to Internet backbone owners treating all Internet traffic equally.

Answer: TRUE

Difficulty: Moderate

AACSB: Application of knowledge

13) The Children's Internet Protection Act (CIPA) requires schools and libraries in the United States to install technology protection measures in an effort to shield children from pornography.

Answer: TRUE

Difficulty: Moderate

AACSB: Application of knowledge

14) The Unlawful Internet Gambling Enforcement Act has eliminated all online gambling in the United States.

Answer: FALSE

Difficulty: Easy

AACSB: Application of knowledge

15) Google defends its Library Project on the grounds of fair use.

Answer: TRUE

Difficulty: Moderate

AACSB: Application of knowledge

16) Which of the following e-commerce technology dimensions creates greater opportunities for cyberbullying?

- A) richness
- B) interactivity
- C) social technology
- D) ubiquity

Answer: C

Difficulty: Moderate

AACSB: Application of knowledge

17) Which of the following e-commerce technology dimensions has the potential to reduce cultural diversity in products?

- A) richness
- B) interactivity
- C) information density
- D) global reach

Answer: D

Difficulty: Moderate

AACSB: Application of knowledge

18) Which of the following is *not* one of the four basic principles shared by ethical schools of thought in western culture?

- A) accountability
- B) privacy
- C) due process
- D) liability

Answer: B

Difficulty: Moderate

AACSB: Ethical understanding and reasoning

19) What is the first step in analyzing an ethical dilemma?

- A) Define the conflict or dilemma and identify the higher-order values involved.
- B) Identify the potential consequences of your opinions.
- C) Identify the options you can reasonably take.
- D) Identify and describe the facts.

Answer: D

Difficulty: Moderate

AACSB: Ethical understanding and reasoning

20) Which ethical principle states that, when confronted with an ethical dilemma, individuals should take the action that achieves the greater value for all of society?

- A) the Golden Rule
- B) Universalism
- C) the Collective Utilitarian principle
- D) the Social Contract rule

Answer: C

Difficulty: Moderate

AACSB: Ethical understanding and reasoning

21) Which ethical principle emphasizes putting oneself into the place of others and thinking of oneself as the object of the decision?

- A) the Golden Rule
- B) Universalism
- C) the Collective Utilitarian principle
- D) the Social Contract rule

Answer: A

Difficulty: Moderate

AACSB: Ethical understanding and reasoning

22) Which ethical principle asks you to assume that virtually all tangible and intangible objects are owned by someone else unless there is a specific declaration otherwise?

- A) the Golden Rule
- B) the Slippery Slope
- C) the Social Contract rule
- D) No Free Lunch

Answer: D

Difficulty: Moderate

AACSB: Ethical understanding and reasoning

23) Which ethical principle states that if an action cannot be taken repeatedly, then it is not right to take at all?

- A) Universalism
- B) the Slippery Slope
- C) the Social Contract rule
- D) the Golden Rule

Answer: B

Difficulty: Moderate

AACSB: Ethical understanding and reasoning

24) Which ethical principle asks you to consider the impact of your decision if the principles underlying your decision became an organizing principle of the entire society?

- A) the Golden Rule
- B) Risk Aversion
- C) the Slippery Slope
- D) the Social Contract rule

Answer: D

Difficulty: Moderate

AACSB: Ethical understanding and reasoning

- 25) Which ethical principle tells you that it is wise to assume perfect information markets?
- A) the Golden Rule
  - B) the *New York Times* test
  - C) the Social Contract rule
  - D) the Collective Utilitarian principle

Answer: B

Difficulty: Moderate

AACSB: Ethical understanding and reasoning

- 26) Which ethical principle states that when confronted with an ethical dilemma, an individual should take the action that produces the least harm, or the least potential cost?
- A) the Slippery Slope
  - B) Risk Aversion
  - C) No Free Lunch
  - D) the Collective Utilitarian principle

Answer: B

Difficulty: Moderate

AACSB: Ethical understanding and reasoning

- 27) Which of the following basic ethical concepts plays an important role in defining privacy?
- A) responsibility
  - B) accountability
  - C) liability
  - D) due process

Answer: D

Difficulty: Difficult

AACSB: Ethical understanding and reasoning

- 28) \_\_\_\_\_ is collected data that can be used to identify and locate an individual.
- A) A personal profile
  - B) P3P
  - C) Anonymous information
  - D) PII

Answer: D

Difficulty: Easy

AACSB: Application of knowledge

- 29) Which of the following tools can companies use to track user statements and views on newsgroups, chat groups, and other public forums?
- A) cookies
  - B) digital wallets
  - C) search engines
  - D) shopping carts

Answer: C

Difficulty: Moderate

AACSB: Information technology

30) Which of the following can be used to record all keyboard activity of a user?

- A) shopping carts
- B) trusted computing environments
- C) spyware
- D) DRM

Answer: C

Difficulty: Easy

AACSB: Application of knowledge

31) Which of the following is *not* one of the issues complicating the taxation of e-commerce sales?

- A) Taxes raised are used for different government purposes.
- B) Sales taxes and policies vary by state and country.
- C) Retailers legally only have to charge sales tax if they have operations located in the same state as a consumer.
- D) Small online businesses are unable to manage sales taxes to thousands of different jurisdictions.

Answer: A

Difficulty: Difficult

AACSB: Application of knowledge

32) Google's Gmail advertising has raised concerns about which of the following issues?

- A) privacy
- B) copyright
- C) trademark
- D) patents

Answer: A

Difficulty: Moderate

AACSB: Analytical thinking

33) Which of the following statements about industry self-regulation regarding privacy is *not* true?

- A) OPA members are required to implement the OPA's privacy guidelines.
- B) The primary focus of industry efforts has been the use of online "seals" that attest to the site's policies.
- C) Industry efforts have not so far succeeded in reducing American fears of privacy invasion.
- D) The NAI's privacy policies have established the TRUSTe seal.

Answer: D

Difficulty: Difficult

AACSB: Application of knowledge

34) The sharing of a user's stored cookie information between Web sites and without the user's knowledge is:

- A) legal in the United States but illegal in Europe.
- B) illegal in the United States but legal in Europe.
- C) legal in both the United States and Europe.
- D) illegal in both the United States and Europe.

Answer: A

Difficulty: Moderate

AACSB: Application of knowledge

35) Which of the following requires financial institutions to inform consumers of their privacy policies and permits consumers some control over their records?

- A) Freedom of Information Act
- B) Gramm-Leach-Bliley Act
- C) COPPA
- D) HIPAA

Answer: B

Difficulty: Difficult

AACSB: Application of knowledge

36) A social consequence of the richness of Internet information is:

- A) an increase in shallowness.
- B) an increase in the ease of creating misleading information.
- C) very persuasive messages might reduce the need for multiple independent sources of information.
- D) an increase in vulnerability to hacking attacks.

Answer: C

Difficulty: Difficult

AACSB: Application of knowledge

37) Which of the following is a core Fair Information Practices (FIP) principle?

- A) Choice/Consent
- B) Access/Participation
- C) Security
- D) Enforcement

Answer: A

Difficulty: Difficult

AACSB: Application of knowledge

38) Which of the FTC's Fair Information Practices (FIP) principles requires identification of the collector of data?

- A) Notice/Awareness
- B) Choice/Consent
- C) Access/Participation
- D) Security

Answer: A

Difficulty: Moderate

AACSB: Application of knowledge

39) Which of the FTC's Fair Information Practices (FIP) principles requires opt-in or opt-out policies to be in place?

- A) Notice/Awareness
- B) Choice/Consent
- C) Access/Participation
- D) Security

Answer: B

Difficulty: Moderate

AACSB: Application of knowledge

40) What is the FTC recommendation regarding choice as it relates to personally identifiable information (PII)?

- A) Require firms to have consumers affirmatively opt-in before PII is collected.
- B) Require firms to allow consumers to opt-out before PII is collected.
- C) Make collection of PII illegal.
- D) Require robust notice only before PII is collected.

Answer: A

Difficulty: Difficult

AACSB: Application of knowledge

41) "Do Not Track" falls under which of the following principles in the FTC's new privacy framework?

- A) Privacy by Design
- B) Simplified Choice
- C) Greater Transparency
- D) Scope

Answer: B

Difficulty: Moderate

AACSB: Application of knowledge

42) Which of the following technologies allows you to send e-mail without a trace?

- A) anonymous surfing
- B) P2P
- C) anonymous remailers
- D) public key encryption

Answer: C

Difficulty: Moderate

AACSB: Application of knowledge

43) Which pricing plan charges fees to e-commerce firms based on the amount of traffic they generate?

- A) highway pricing
- B) cap pricing
- C) usage-based billing
- D) congestion pricing

Answer: A

Difficulty: Moderate

AACSB: Application of knowledge

44) What is the major reason that the Internet has such potential for destroying traditional conceptions and implementations of intellectual property law?

- A) the ability to make perfect copies of digital works at little cost
- B) the anonymous nature of the Internet
- C) the support for instant peer-to-peer communication
- D) the use of standards for file formats

Answer: A

Difficulty: Moderate

AACSB: Application of knowledge

45) Which of the following protects original forms of expression in a tangible medium?

- A) trade secret law
- B) copyright law
- C) patent law
- D) trademark law

Answer: B

Difficulty: Moderate

AACSB: Application of knowledge

46) How long does copyright protection extend for corporate-owned works?

- A) 25 years
- B) 50 years
- C) 75 years
- D) 95 years

Answer: D

Difficulty: Moderate

AACSB: Application of knowledge

47) Which of the following situations would *not* qualify for the fair use exception to U.S. copyright law?

- A) A professor clips a newspaper article just before class and distributes copies of it to his class.
- B) A journalist quotes a paragraph from a book in a review of the book.
- C) A student copies a photograph of his favorite band from a Web site created by the band's record label and places it on the student's personal Web site.
- D) Google posts thumbnail images of books in the Google Book Search Project.

Answer: C

Difficulty: Difficult

AACSB: Analytical thinking

48) All of the following are factors that will be considered in determining whether use of copyrighted material is "fair use" *except* the:

- A) nature of the work used.
- B) amount of the work used.
- C) market effect of the use.
- D) free availability of the work on the Web.

Answer: D

Difficulty: Moderate

AACSB: Application of knowledge

49) Downloading music tracks owned by record companies without paying for them is an example of a violation of:

- A) patent law.
- B) copyright law.
- C) trademark law.
- D) privacy law.

Answer: B

Difficulty: Moderate

AACSB: Application of knowledge

50) All of the following are possible penalties for violating the Digital Millennium Copyright Act (DMCA) *except*:

- A) up to ten years imprisonment for a first offense.
- B) fines up to \$500,000 for a first offense.
- C) fines up to \$1 million for a repeat offense.
- D) restitution to the injured parties for any losses due to infringement.

Answer: A

Difficulty: Moderate

AACSB: Application of knowledge

51) All of the following statements about the Digital Millennium Copyright Act (DMCA) are true *except*:

- A) the DMCA makes it illegal to circumvent technological measures to protect works.
- B) the DMCA makes Internet Service Providers (ISPs) responsible and accountable for hosting Web sites or providing services to infringers regardless of whether the ISP is aware of infringement.
- C) the DMCA requires search engines to block access to infringing sites.
- D) the DMCA allows libraries to make digital copies of works for internal use only.

Answer: B

Difficulty: Moderate

AACSB: Application of knowledge

52) Which of the following allows someone to obtain an exclusive monopoly on the ideas behind an invention for 20 years?

- A) copyright law
- B) trade secret law
- C) patent law
- D) trademark law

Answer: C

Difficulty: Moderate

AACSB: Application of knowledge

53) All of the following statements about patents are true *except*:

- A) it is more difficult to obtain a copyright than it is to obtain a patent.
- B) the four types of inventions protected by patent law are machines, manmade products, compositions of matter, and processing methods.
- C) computer programs can be patented.
- D) in order to be patented, an invention must be nonobvious.

Answer: A

Difficulty: Moderate

AACSB: Application of knowledge

54) Which case was instrumental in paving the way for Internet business methods patents?

- A) *Brown Bag v. Symantec*
- B) *State Street Bank & Trust Co. v. Signature Financial Group, Inc.*
- C) *Ford Motor Co. v. Lapertosa*
- D) *Ticketmaster Corp. v. Tickets.com*

Answer: B

Difficulty: Difficult

AACSB: Application of knowledge

55) Amazon has a patent on:

- A) download-based sales.
- B) display of third-party advertisements in floating windows.
- C) one-click purchasing.
- D) hyperlinks.

Answer: C

Difficulty: Moderate

AACSB: Application of knowledge

56) Disputes over federal trademarks involve establishing:

- A) underlying ideas.
- B) intent.
- C) piracy.
- D) infringement.

Answer: D

Difficulty: Moderate

AACSB: Application of knowledge

57) Registering a domain name similar or identical to trademarks of others to extort profits from legitimate holders is an example of:

- A) cybersquatting.
- B) cyberpiracy.
- C) framing.
- D) metatagging.

Answer: A

Difficulty: Easy

AACSB: Application of knowledge

58) All of the following are data elements that are often gathered by e-commerce sites *except*:

- A) family member identities.
- B) photograph.
- C) location.
- D) address.

Answer: A

Difficulty: Easy

AACSB: Application of knowledge

59) Registering a domain name similar or identical to trademarks of others to divert Web traffic to their own sites is an example of:

- A) cybersquatting.
- B) cyberpiracy.
- C) framing.
- D) metatagging.

Answer: B

Difficulty: Moderate

AACSB: Application of knowledge

60) Registering the domain name goggle.com with the intent to divert Web traffic from people misspelling google.com is an example of:

- A) cybersquatting.
- B) typosquatting.
- C) metatagging.
- D) linking.

Answer: B

Difficulty: Easy

AACSB: Application of knowledge

61) Critics have pointed out that the Chrome browser's Suggest button, which suggests queries based on search terms entered by the user, is in fact, a type of:

- A) worm.
- B) PUP.
- C) key logger.
- D) malware.

Answer: C

Difficulty: Moderate

AACSB: Application of knowledge

62) The display of a third-party's Web site or page within your own Web site is called:

- A) cybersquatting.
- B) metatagging.
- C) framing.
- D) deep linking.

Answer: C

Difficulty: Moderate

AACSB: Application of knowledge

63) Which of the following statements about e-commerce surveillance is *not* true?

- A) Government agencies are one of the largest users of personal data gathered by commercial data brokers.
- B) Google discards search information after 12 months.
- C) The largest private-sector commercial data broker is Acxiom.
- D) Commercial brokers of personal data combine personal identifying records with legal records such as driving records and clickstream behavior.

Answer: B

Difficulty: Difficult

AACSB: Application of knowledge

64) Which of the following is *not* one of the four stages of e-commerce governance?

- A) government regulation
- B) self-regulation
- C) privatization
- D) deregulation

Answer: D

Difficulty: Moderate

AACSB: Application of knowledge

65) Which of the following statements about social, local, and mobile privacy is *not* true?

- A) A single Facebook photograph can be used to identify the subject's social security number with the use of facial recognition software.
- B) iOS and Android apps funnel personal location information, photos, and address books to mobile advertisers.
- C) Google and Apple track and record how users interact with the apps on users' smartphones.
- D) To date, there is no legal prohibition of the collection and sharing of personal data sent through mobile phones.

Answer: C

Difficulty: Difficult

AACSB: Application of knowledge

66) The \_\_\_\_\_ of Internet and Web technology can result in work and shopping invading family life.

Answer: ubiquity

Difficulty: Difficult

AACSB: Application of knowledge

67) The four major dimensions of e-commerce ethical, social, and political issues are public safety and welfare; property rights; information rights; and \_\_\_\_\_.

Answer: governance

Difficulty: Difficult

AACSB: Application of knowledge

68) An ISP basic service plan, allowing 300GB of data transfer per month, with additional data transfer available for \$15 for 50GB, is an example of a tiered plan called \_\_\_\_\_.

Answer: cap pricing

Difficulty: Moderate

AACSB: Application of knowledge

69) Personal data that is defined as \_\_\_\_\_ information is demographic and behavioral information that does not include any personal identifiers.

Answer: anonymous

Difficulty: Easy

AACSB: Application of knowledge

70) \_\_\_\_\_ involves the creation of digital images that characterize online individual and group behavior.

Answer: Profiling

Difficulty: Moderate

AACSB: Application of knowledge

71) Megaupload is an example of a(n) \_\_\_\_\_, an online file storage service dedicated to sharing copyrighted material illegally.

Answer: cyberlocker

Difficulty: Moderate

AACSB: Application of knowledge

72) \_\_\_\_\_ profiles identify people as belonging to highly specific and targeted groups.

Answer: Anonymous

Difficulty: Moderate

AACSB: Application of knowledge

73) A(n) \_\_\_\_\_ is a private self-regulating policy and enforcement mechanism that meets the objectives of government regulators and legislation, but does not involve government regulation or enforcement.

Answer: safe harbor

Difficulty: Moderate

AACSB: Application of knowledge

74) \_\_\_\_\_ involves bypassing the target site's home page and going directly to a content page.

Answer: Deep linking

Difficulty: Moderate

AACSB: Application of knowledge

75) \_\_\_\_\_ copyright infringement lawsuits are concerned with the distinction between an idea and its expression.

Answer: Look and feel

Difficulty: Moderate

AACSB: Application of knowledge

76) The doctrine of \_\_\_\_\_ permits teachers and writers to use copyrighted materials without permission under certain circumstances.

Answer: fair use

Difficulty: Difficult

AACSB: Application of knowledge

77) In trademark law, \_\_\_\_\_ is defined as any behavior that would weaken the connection between the trademark and the product.

Answer: dilution

Difficulty: Moderate

AACSB: Application of knowledge

78) Single words, pictures, shapes, packaging, and colors used to identify and distinguish goods are protected under \_\_\_\_\_ law.

Answer: trademark

Difficulty: Moderate

AACSB: Application of knowledge

79) Under the \_\_\_\_\_ Act, American intelligence authorities are permitted to tap into whatever Internet traffic they believe is relevant to the campaign against terrorism, in some circumstances without judicial review.

Answer: USA Patriot, Patriot

Difficulty: Difficult

AACSB: Application of knowledge

80) The issue of \_\_\_\_\_ pits those who wish that all Internet traffic is given equal backbone access against telephone and cable companies that would like to charge differentiated prices based on bandwidth and fees paid.

Answer: net neutrality

Difficulty: Moderate

AACSB: Application of knowledge

81) Discuss in depth one ethical, social, or political issue that is presently in the news surrounding the Internet and e-commerce.

Answer: A student might answer this issue by focusing on any one of a number of ethical, social, or political issues currently surrounding the Internet and e-commerce. Possible topics include privacy issues, intellectual property rights issues (copyright, patents, or trademarks), taxation, Internet governance issues, online pornography, gambling, or the sale of cigarettes and drugs.

Difficulty: Moderate

AACSB: Analytical thinking; Information technology; Written and oral communication

82) Define privacy, information privacy, and informed consent and discuss the ways in which the practices of e-commerce companies, particularly the use of advertising networks, threaten people's privacy.

Answer: Privacy is the moral right of individuals to be left alone, free from surveillance or interference from other individuals including the state. Information privacy includes both the right to prohibit certain information from being collected by either governments or businesses and the right to control the use of whatever information is collected about you. The core concept is the control of your own personal information.

Informed consent means that an individual has knowledge of all of the material facts needed to make a rational decision and consent has been given to collect information. In the United States, business firms and government agencies can gather transaction data from the marketplace and use it for other marketing purposes without the informed consent of the individual. In Europe, on the other hand, this is illegal. European businesses can only use transaction data to support the current transaction if they have asked for and received the informed consent of the individual.

Advertising networks are a threat to people's privacy because they collect information about how you use the Web including the sites you visit, the keywords you use in searches and other queries, your online purchases, the click-through ads you respond to, information you submit to social networking sites, and other information. These advertising networks, with the permission of the Web sites you visit but not your permission, place cookies on your computer that are used to track your movements as you surf the Web. In addition to this information, they may also compile a profile that contains information that the company infers about you based upon the sites you visit. All of this data is entered into a database and analyzed to create a profile that might include your interests, habits, associations, and inferred personality traits.

From a privacy protection perspective, the advertising network raises issues about who will see and use the information held by private companies, whether the user profiles will be linked to actual personally identifying information (such as name, social security number, and bank and credit accounts), the absence of consumer control over the use of the information, the lack of consumer choice, the absence of consumer notice, and the lack of review and amendment procedures. The pervasive and largely unregulated collection of personal information online has raised significant fears and opposition among consumers. Contrary to what the online advertising industry has often said, namely, that the public really does not care about its online privacy, there is a long history of opinion polls that document the public's fear of losing control over their personal information when visiting e-commerce sites.

Difficulty: Moderate

AACSB: Analytical thinking; Information technology; Written and oral communication

83) Describe and evaluate the different methods that are being used to protect online privacy. Which of these methods do you think is or could be the most effective?

Answer: The different methods being used to protect online privacy include legal protections, industry self-regulation, privacy advocacy groups, privacy protection products, and technology solutions.

In the United States, the Federal Trade Commission has taken the lead in researching online privacy and recommending legislation to Congress. The FTC has issued the Fair Information Practice (FIP) Principles, which forms the basis for its recommendations for online privacy. Two core principles are Notice/Awareness and Choice/Consent. The Notice/Awareness principle recommends that sites disclose their information practices before collecting data. The Choice/Consent principle recommends that there be a choice system in place that allows consumers to choose how their information will be used for secondary purposes other than supporting transactions. Although the FIP principles are guidelines, not laws, they have stimulated private firms to develop their own guidelines and are being used as the basis of new legislation, such as the Children's Online Privacy Protection Act (COPPA), which requires Web sites to obtain parental permission before collecting information on children under 13 years of age. Recently, the FTC has developed a new framework to address consumer privacy. The main principles are privacy by design, simplified choice, and greater transparency, applied to all commercial entities that collect or use consumer data, not just those that collect PII. It has also called for a "Do Not Track" mechanism for online behavioral advertising. As with FIP, these principles remain guidelines. Although several bills have been introduced in Congress to implement them, none have been passed as of yet.

The online industry, of course, opposes any legislation. It argues that self-regulation can address the growing consumer concern about misuse of personal information. The online industry formed the Online Privacy Alliance (OPA) to encourage self-regulation. In addition, the Network Advertising Initiative, a consortium of major Internet advertising companies, was formed to develop policies for the industry. The NAI policies are designed to offer consumers opt-out programs and to provide consumers with redress for abuses. Other forms of self-regulation include various "seals" of approval that sites can display when in compliance with certain privacy policies. However, these seal programs have had a limited impact on Web privacy practices and critics argue that the programs are not particularly effective in safeguarding privacy. In general, industry efforts at self-regulation in online privacy have not succeeded in reducing American fears of privacy invasion during online transactions or in reducing the level of privacy invasion.

In addition number of firms have sprung up to sell products that they claim will help people protect their privacy, from protecting their online reputation to selling their personal information to the highest bidder. Consumer privacy groups have also formed to monitor developments, and there are some technological solutions that help, although primarily in the arena of security. Technological tools include spyware blockers, pop-up blockers, methods to secure e-mail, anonymous remailers, anonymous surfing, and cookie managers.

[Student evaluations of which methods are the most effective will vary.]

Difficulty: Moderate

AACSB: Analytical thinking; Information technology; Written and oral communication

84) Describe the purpose of intellectual property law and outline the main types of intellectual property protection.

Answer: The purpose of intellectual property law is to balance two competing interests: the public and the private. The public interest is served by the creation of inventions, works of art, music, literature, and other types of intellectual expression. The private interest is served by rewarding creators of intellectual property by a time-limited monopoly that grants exclusive use to the creator.

There are three main types of intellectual property protection: copyright, patent, and trademark law. Copyright law protects original forms of expression such as books, periodicals, and other forms of written expression, art, drawings, photographs, music, movies, performances, and computer programs. Patents grant the owner a 20-year exclusive monopoly on the ideas behind an invention. There are four types of inventions for which patents are granted under patent law: machines, manmade products, compositions of matter, and processing methods. Trademark law is used to protect trademarks—marks used to identify and distinguish goods and indicate their source.

Difficulty: Moderate

AACSB: Analytical thinking; Written and oral communication

85) Explain why the taxation of e-commerce raises governance and jurisdiction issues.

Answer: The taxation of e-commerce illustrates the complexity of the governance and jurisdictional issues in the global economy. Most of the issues surround the sales tax imposed by various states or countries on products sold to residents of their state or country. Governments the world over rely on sales taxes to fund various types of government initiatives and programs including the building of roads, schools, and sewers or other utilities to support business development.

In the United States, between the fifty states and the multiple counties and municipalities, there are thousands of different tax rates and policies. For example, in some states food is not taxed at all and there are a myriad of different exceptions and inclusions depending on the locality. However, with the rise of e-commerce and virtual storefronts, the question is raised as to what locale a virtual storefront is considered to be located in. The development of MOTO (mail order/telephone) retail in the 1970s began the discussion on the taxing of remote sales. State and local tax authorities wanted MOTO retailers to collect taxes based upon the address of the recipients, but the Supreme Court has ruled that states cannot force MOTO retailers to collect taxes unless the business has a physical presence in the state. Legislation to the contrary has never been able to garner sufficient support in Congress due to pressure from the catalog merchants, leaving intact an effective tax subsidy for MOTO merchants.

The merger of online e-commerce with offline commerce further complicates the taxation question. Currently, almost all of the top 100 online retailers collect taxes when orders ship to states where these firms have a physical presence. But others, like eBay, still refuse to collect and pay local taxes, arguing that the so-called tax simplification project ended up with taxes for each of 49,000 ZIP codes, hardly a simplification.

The taxation situation is also very complex in services. For instance, none of the major online travel sites collect the full amount of state and local hotel occupancy taxes, or state and local airline taxes. Instead of remitting sales tax on the full amount of the consumer's purchase, these sites instead collect taxes on the basis of the wholesale price they pay for the hotel rooms or tickets. Today there is no integrated rational approach to taxation of domestic or international e-commerce. In the United States, the national and international character of Internet sales is wreaking havoc on taxation schemes that were built in the 1930s and based on local commerce and local jurisdictions.

Difficulty: Difficult

AACSB: Analytical thinking; Written and oral communication

86) Describe the five-step process that can be used to analyze an ethical dilemma. What other guidelines are there to help in understanding a complicated ethical or moral situation?

Answer: The five-step process is:

**1. Identify and describe the facts.** Find out who did what to whom, and where, when, and how. It helps to get the opposing parties involved in an ethical dilemma to agree on the facts.

**2. Define the conflict or dilemma and identify the higher-order values involved.** Ethical, social, and political issues always reference higher values. Otherwise, there would be no debate. The parties to a dispute all claim to be pursuing higher values (e.g., freedom, privacy, protection of property, and the free enterprise system).

**3. Identify the stakeholders.** Every ethical, social, and political issue has stakeholders: players in the game who have an interest in the outcome, who have invested in the situation, and usually who have vocal opinions. Find out the identity of these groups and what they want. This will be useful later when designing a solution.

**4. Identify the options that you can reasonably take.** You may find that none of the options satisfies all the interests involved, but that some options do a better job than others. Sometimes, arriving at a "good" or ethical solution may not always be a balancing of consequences to stakeholders.

**5. Identify the potential consequences of your options.** Some options may be ethically correct, but disastrous from other points of view. Other options may work in this one instance, but not in other similar instances. Always ask yourself, "What if I choose this option consistently over time?"

Other things to consider when appraising a dilemma include basic ethical concepts such as responsibility, accountability, and liability and how these play into the situation. Additionally, you can judge the situation against candidate ethical principles, such as the Golden Rule, the Slippery Slope theory, Universalism, the Collective Utilitarian principle, Risk Aversion theory, the No Free Lunch theory, the *New York Times* test (Perfect Information rule), and the Social Contract rule. Actions that do not easily pass these guidelines deserve some very close attention and a great deal of caution because the appearance of unethical behavior may do as much harm to you and your company as the actual behavior.

Difficulty: Moderate

AACSB: Analytical thinking; Written and oral communication; Ethical understanding and reasoning

**E-Commerce 2014, 10e (Laudon/Traver)**  
**Chapter 9 Online Retailing and Services**

1) Mobile commerce currently accounts for more retail goods sold than social commerce.

Answer: TRUE

Difficulty: Moderate

AACSB: Application of knowledge

2) In 2013, the number of online buyers was over 150 million.

Answer: TRUE

Difficulty: Moderate

AACSB: Application of knowledge

3) Groupon is an example of local commerce.

Answer: TRUE

Difficulty: Moderate

AACSB: Application of knowledge

4) Online retailing is one of the largest segments of the retail industry.

Answer: FALSE

Difficulty: Moderate

AACSB: Application of knowledge

5) Contrary to predictions of analysts made during the early days of e-commerce, the Internet has led to both disintermediation and hypermediation on a widespread basis.

Answer: FALSE

Difficulty: Moderate

AACSB: Application of knowledge

6) Consumers are primarily price-driven when shopping on the Internet.

Answer: FALSE

Difficulty: Moderate

AACSB: Application of knowledge

7) Online retailing provides an example of the powerful role that intermediaries continue to play in retail trade.

Answer: TRUE

Difficulty: Moderate

AACSB: Application of knowledge

8) The power of suppliers is a key industry strategic factor.

Answer: TRUE

Difficulty: Moderate

AACSB: Application of knowledge

9) In the United States, the service sector accounts for about 75% of all economic activity.

Answer: TRUE

Difficulty: Moderate

AACSB: Application of knowledge

10) The retail industry is the largest investor in information technology.

Answer: FALSE

Difficulty: Moderate

AACSB: Application of knowledge

11) Social network sites have become major locations from which consumers directly purchase products.

Answer: FALSE

Difficulty: Moderate

AACSB: Application of knowledge

12) Approximately two-thirds of U.S. Internet users use online banking.

Answer: TRUE

Difficulty: Moderate

AACSB: Application of knowledge

13) The online mortgage industry has transformed the process of obtaining a mortgage.

Answer: FALSE

Difficulty: Moderate

AACSB: Application of knowledge

14) The major impact of Internet real estate sites is in enabling online-only property transactions.

Answer: FALSE

Difficulty: Moderate

AACSB: Application of knowledge

15) Online career sites are being threatened by both job search engines and aggregators.

Answer: TRUE

Difficulty: Easy

AACSB: Application of knowledge

16) Which of the following is *not* a major trend in online retail for 2013-2014?

A) Online retailing is the fastest growing retail channel.

B) Lunchtime purchases are the fastest growing time segment for online retail purchases.

C) Online retailers increase the use of interactive marketing tools such as blogs and user-generated content.

D) Social commerce almost doubles from \$3 billion to \$5 billion.

Answer: B

Difficulty: Moderate

AACSB: Application of knowledge

17) Personal consumption of retail goods and services accounts for approximately \_\_\_\_\_ % of the United States GDP.

- A) 15
- B) 25
- C) 50
- D) 70

Answer: D

Difficulty: Moderate

AACSB: Application of knowledge

18) Eight of the top ten fastest-growing e-commerce merchants from 2003 to 2013 were:

- A) virtual merchants.
- B) bricks-and-clicks companies.
- C) catalog merchants.
- D) manufacturer-direct firms.

Answer: B

Difficulty: Moderate

AACSB: Application of knowledge

19) Within the United States retail market, personal consumption of \_\_\_\_\_ accounts for the largest share.

- A) durable goods
- B) general merchandise
- C) online retail
- D) food and beverage

Answer: A

Difficulty: Moderate

AACSB: Application of knowledge

20) Comparison shopping sites drive approximately \_\_\_\_\_ % of e-commerce.

- A) 15
- B) 30
- C) 50
- D) 75

Answer: A

Difficulty: Moderate

AACSB: Application of knowledge

21) The MOTO sector of the retail industry is most similar to the \_\_\_\_\_ sector.

- A) specialty stores
- B) general merchandise
- C) online retail sales
- D) consumer durables

Answer: C

Difficulty: Moderate

AACSB: Application of knowledge

22) Which of the following is *not* one of the seven major segments of the retail industry?

- A) electronics and computers
- B) specialty stores
- C) gasoline and fuel
- D) food and beverage

Answer: A

Difficulty: Easy

AACSB: Application of knowledge

23) Service industry groups are categorized generally into two groups, those that provide transaction brokering and those that involve:

- A) retailing goods.
- B) personalization.
- C) information brokering.
- D) providing hands-on services.

Answer: D

Difficulty: Moderate

AACSB: Application of knowledge

24) All of the following statements about the MOTO sector are true *except*:

- A) compared to general merchandisers, the transition to e-commerce has been easier for MOTO firms.
- B) the MOTO sector is also referred to as the specialty store sector.
- C) MOTO was the last technological revolution that preceded e-commerce.
- D) distribution of catalogs is one of MOTO retailers' biggest expenses.

Answer: B

Difficulty: Moderate

AACSB: Application of knowledge

25) All of the following were factors that precipitated the growth of MOTO *except*:

- A) the national toll-free call system.
- B) the growth of the cellular phone industry.
- C) falling long distance telecommunications prices.
- D) the growth of the credit card industry.

Answer: B

Difficulty: Moderate

AACSB: Application of knowledge

26) All of the following were parts of the vision during the early days of e-commerce *except* the belief that:

- A) new, "first-mover" middlemen, with expertise in e-commerce, would force traditional intermediaries out of business.
- B) Web consumers were rational and cost-driven.
- C) entry costs to the online retail market would be much less than those needed to establish a physical storefront.
- D) the cost of acquiring customers would be much lower.

Answer: A

Difficulty: Moderate

AACSB: Application of knowledge

27) In 2013, online retail revenues were approximately:

- A) \$2.6 billion.
- B) \$26 billion.
- C) \$260 billion.
- D) \$2.6 trillion.

Answer: C

Difficulty: Difficult

AACSB: Application of knowledge

28) In 2013, approximately what percentage of Internet users over the age of 14 made a purchase at an online retail store?

- A) 33%
- B) 53%
- C) 73%
- D) 93%

Answer: C

Difficulty: Moderate

AACSB: Application of knowledge

29) Which consumer review aggregator is facing charges that as many as 10 million of its reviews are faked?

- A) Yelp
- B) TripAdvisor
- C) Angie's List
- D) Porch

Answer: B

Difficulty: Moderate

AACSB: Application of knowledge

30) The top 10 retailers account for about \_\_\_\_\_ % of all online retail.

- A) 30
- B) 50
- C) 70
- D) 90

Answer: B

Difficulty: Moderate

AACSB: Application of knowledge

31) All of the following are advantages of online retail *except*:

- A) lower supply chain costs.
- B) lower cost of distribution.
- C) ability to change prices.
- D) faster delivery of goods.

Answer: D

Difficulty: Moderate

AACSB: Application of knowledge

32) Which of the following is *not* one of the central challenges facing the online retail industry?

- A) lack of physical store presence
- B) consumer concerns about the privacy of personal information
- C) inconvenience in returning goods
- D) delivery delays

Answer: A

Difficulty: Difficult

AACSB: Application of knowledge

33) Which of the following is *not* one of the methods used by traditional retailers to develop multi-channel integration?

- A) online Web catalog
- B) online order, in-store pickup
- C) online supply-push
- D) online promotions for offline purchases

Answer: C

Difficulty: Moderate

AACSB: Application of knowledge

34) Which of the following is *not* a key industry strategic factor?

- A) synergies
- B) barriers to entry
- C) industry value chain
- D) existence of substitute products

Answer: A

Difficulty: Moderate

AACSB: Application of knowledge

35) All of the following are strategic factors that pertain specifically to a firm and its related businesses *except*:

- A) core competencies.
- B) synergies.
- C) technology.
- D) power of customers.

Answer: D

Difficulty: Moderate

AACSB: Application of knowledge

36) The lower the cost of sales compared to \_\_\_\_\_, the higher the gross profit.

- A) assets
- B) revenue
- C) gross margin
- D) operating expenses

Answer: B

Difficulty: Difficult

AACSB: Application of knowledge

37) Gross margin is defined as gross profit:

- A) minus total operating expenses.
- B) divided by net sales revenues.
- C) divided by cost of sales.
- D) minus net income.

Answer: B

Difficulty: Moderate

AACSB: Application of knowledge

38) Which of the following is *not* categorized as an operating expense?

- A) the cost of products being sold
- B) marketing costs
- C) administrative overhead
- D) amortization of goodwill

Answer: A

Difficulty: Moderate

AACSB: Application of knowledge

39) Operating margin is defined as:

- A) operating income or loss divided by net sales revenues.
- B) operating income or loss divided by total operating expenses.
- C) net sales revenues divided by net income or loss.
- D) net assets divided by net liabilities.

Answer: A

Difficulty: Moderate

AACSB: Application of knowledge

40) What is another name for pro forma earnings?

- A) net margin
- B) operating income
- C) earnings before income taxes, depreciation, and amortization (EBITDA)
- D) generally accepted accounting principles (GAAP) earnings

Answer: C

Difficulty: Difficult

AACSB: Application of knowledge

41) Which of the following would *not* be considered a current asset?

- A) long-term investments
- B) cash
- C) accounts receivable
- D) marketable securities

Answer: A

Difficulty: Moderate

AACSB: Application of knowledge

42) Current liabilities are debts of the firm that will be due within:

- A) three months.
- B) six months.
- C) one year.
- D) two years.

Answer: C

Difficulty: Moderate

AACSB: Application of knowledge

43) For a quick check of a firm's short-term financial health, examine its:

- A) working capital.
- B) gross margin.
- C) long-term debt.
- D) cost of sales.

Answer: A

Difficulty: Moderate

AACSB: Application of knowledge

44) Virtual merchants face potentially large costs for all of the following *except*:

- A) building and maintaining a Web site.
- B) building and maintaining physical stores.
- C) building an order fulfillment infrastructure.
- D) developing a brand name.

Answer: B

Difficulty: Easy

AACSB: Application of knowledge

45) All of the following statements about Amazon.com are true *except*:

- A) Amazon has achieved success by focusing on its primary mission: selling books at highly competitive prices.
- B) Amazon leases its own computing power to other companies.
- C) eBay can be considered a competitor of Amazon's.
- D) the Kindle is the best-selling product in Amazon's history.

Answer: A

Difficulty: Difficult

AACSB: Application of knowledge

46) All of the following are challenges faced by bricks-and-clicks firms *except*:

- A) coordinating prices across channels.
- B) handling returns of Web purchases at retail outlets.
- C) building a credible Web site.
- D) building a brand name.

Answer: D

Difficulty: Moderate

AACSB: Application of knowledge

47) All of the following are challenges for catalog merchants *except*:

- A) high costs of printing and mailing.
- B) building a credible Web site.
- C) the need to bring staff in or manage new technology.
- D) building sophisticated order entry and fulfillment systems.

Answer: D

Difficulty: Moderate

AACSB: Application of knowledge

48) Which of these job recruitment sites is a job site aggregator?

- A) SimplyHired
- B) Craigslist
- C) Monster
- D) CareerBuilder

Answer: A

Difficulty: Easy

AACSB: Application of knowledge

49) The term *demand-pull* refers to:

- A) making products prior to orders being received based on estimated demand.
- B) waiting for orders to be received before building a product.
- C) channel conflict.
- D) multi-channel manufacturers who sell directly online to consumers.

Answer: B

Difficulty: Moderate

AACSB: Application of knowledge

50) All of the following are examples of the challenges that traditional manufacturers experience when using the Internet to sell directly to the consumer *except*:

- A) moving to a demand-pull model.
- B) high cost structures.
- C) developing a fast-response online order and fulfillment system.
- D) channel conflict.

Answer: B

Difficulty: Moderate

AACSB: Application of knowledge

51) Which of the following has experienced the most significant online growth?

- A) offline general merchandisers
- B) virtual merchants
- C) catalog merchants
- D) manufacturer-direct firms

Answer: A

Difficulty: Moderate

AACSB: Application of knowledge

52) Approximately \_\_\_\_\_ % of the United States labor force is involved in providing services.

- A) 50
- B) 65
- C) 75
- D) 85

Answer: C

Difficulty: Moderate

AACSB: Application of knowledge

53) Which of the following is *not* an example of a transaction broker?

- A) a stockbroker
- B) a real estate agent
- C) an accountant
- D) an employment agency

Answer: C

Difficulty: Moderate

AACSB: Application of knowledge

54) All of the following services require extensive personalization *except*:

- A) financial services.
- B) legal services.
- C) medical services.
- D) accounting services.

Answer: A

Difficulty: Moderate

AACSB: Application of knowledge

55) Which of the following is *not* one of Amazon's primary business models?

- A) transaction brokering
- B) financial services provider
- C) manufacturer-direct
- D) content provider

Answer: B

Difficulty: Moderate

AACSB: Analytical thinking

56) Which of the following statements about online banking is *not* true?

- A) Top mobile banking activities include paying bills and depositing checks.
- B) Online and mobile banking transactions incur radically lower transaction costs than in-person transactions.
- C) Online banking is beginning to displace national banks.
- D) Online banking is the primary banking channel for all ages.

Answer: C

Difficulty: Difficult

AACSB: Application of knowledge

57) In \_\_\_\_\_, all of a customer's financial (and even nonfinancial) data are pulled together at a single personalized Web site.

- A) account aggregation
- B) a financial portal
- C) integrated financial services
- D) EBPP systems

Answer: A

Difficulty: Moderate

AACSB: Application of knowledge

58) The Internet has resulted in lower search costs, increased price comparison, and lower prices to consumers for which insurance product line?

- A) term life insurance
- B) automobile insurance
- C) health insurance
- D) property and casualty insurance

Answer: A

Difficulty: Moderate

AACSB: Application of knowledge

59) All of the following statements about the online insurance industry are true *except*:

- A) the Internet has dramatically changed the insurance industry's value chain.
- B) Web sites of almost all the major firms provide the ability to obtain an online quote.
- C) Internet usage has led to a decline in term life insurance prices industry-wide.
- D) the industry has been very successful in attracting visitors searching for information.

Answer: A

Difficulty: Moderate

AACSB: Application of knowledge

- 60) All of the following statements about the online real estate services market are true *except*:
- A) the major impact of Internet real estate sites is in influencing offline decisions.
  - B) real estate differs from other types of online financial services because it is impossible to complete a property transaction online.
  - C) the primary service offered by real estate sites is a listing of houses available.
  - D) the Internet and e-commerce have created significant disintermediation in the real estate marketplace.

Answer: D

Difficulty: Moderate

AACSB: Application of knowledge

- 61) Craigslist is a player in which of the following online services market?

- A) real estate services and career services
- B) insurance services and brokerage services
- C) travel services
- D) online accounting services

Answer: A

Difficulty: Easy

AACSB: Application of knowledge

- 62) Which of the following best explains why the service sector is a natural avenue for e-commerce?

- A) The service sector is less geographically reliant and more globally oriented.
- B) The service sector has historically been more technology-reliant.
- C) Much of the value in services is based on the collection, storage, and exchange of information.
- D) It is not; services are difficult to translate to e-commerce because they rely on face-to-face communication and barter.

Answer: C

Difficulty: Moderate

AACSB: Application of knowledge

- 63) What is the largest sector of the online travel services market in terms of revenue?

- A) hotel reservations
- B) car reservations
- C) cruise/tour reservations
- D) airline reservations

Answer: D

Difficulty: Moderate

AACSB: Application of knowledge

64) Which of the following statements is *not* true?

- A) Price competition among online travel services is difficult as comparison shopping for better prices is easy.
- B) Online travel services is one of the few sectors in which extensive disintermediation has occurred.
- C) The ability of travel products and services to be commoditized is a significant factor in the explosive growth of the online travel services industry.
- D) The online travel services industry has gone through a period of consolidation.

Answer: B

Difficulty: Difficult

AACSB: Application of knowledge

65) Which of the following is *not* a major trend in the online recruitment services industry?

- A) disintermediation
- B) localization
- C) social networking
- D) consolidation

Answer: A

Difficulty: Moderate

AACSB: Application of knowledge

66) \_\_\_\_\_ is the leading supplier of reservation, table management, and guest management software for restaurants.

Answer: OpenTable

Difficulty: Easy

AACSB: Application of knowledge

67) \_\_\_\_\_ occurs when retailers of products must compete on price and currency of inventory directly against the manufacturer.

Answer: Channel conflict

Difficulty: Moderate

AACSB: Application of knowledge

68) \_\_\_\_\_ refers to the ability of firms to survive as profitable business firms during the specified period.

Answer: Economic viability

Difficulty: Moderate

AACSB: Application of knowledge

69) \_\_\_\_\_ measures the percentage of sales revenue a firm is able to retain after all expenses are deducted from gross revenues.

Answer: Net margin

Difficulty: Moderate

AACSB: Application of knowledge

70) A(n) \_\_\_\_\_ provides a financial snapshot of a company's assets and liabilities (debts) on a given date.

Answer: balance sheet

Difficulty: Moderate

AACSB: Application of knowledge

71) If a firm's \_\_\_\_\_ is only marginally positive, or negative, the firm will likely have trouble meeting its short-term obligations.

Answer: working capital

Difficulty: Difficult

AACSB: Application of knowledge

72) A(n) \_\_\_\_\_ is a single channel Web firm that generates almost all its revenues from online sales.

Answer: virtual merchant

Difficulty: Moderate

AACSB: Application of knowledge

73) In a(n) \_\_\_\_\_ strategy, traditional merchants combine their offline retail and online retail stores and services to provide a seamless customer experience.

Answer: multi-channel

Difficulty: Moderate

AACSB: Application of knowledge

74) Thus far, the most successful and innovative pure-play online retailer is \_\_\_\_\_.

Answer: Amazon.com, Amazon

Difficulty: Easy

AACSB: Application of knowledge

75) The leading provider of account aggregation technology is \_\_\_\_\_.

Answer: Yodlee

Difficulty: Moderate

AACSB: Application of knowledge

76) In a(n) \_\_\_\_\_ model, products are made prior to orders received based on estimated demand.

Answer: supply-push

Difficulty: Moderate

AACSB: Application of knowledge

77) The four main online retail business models are virtual merchants, multi-channel merchants, manufacturer-direct firms, and \_\_\_\_\_ merchants.

Answer: catalog

Difficulty: Easy

AACSB: Application of knowledge

78) \_\_\_\_\_ are sites that provide consumers with comparison shopping services, independent financial advice, and financial planning.

Answer: Financial portals

Difficulty: Moderate

AACSB: Application of knowledge

79) The four major sectors in the travel market are airline tickets, hotel reservations, cruises/tours, and \_\_\_\_\_.

Answer: car rentals

Difficulty: Moderate

AACSB: Application of knowledge

80) \_\_\_\_\_ provide integrated airline, hotel, conference center, and auto rental services at a single Web site.

Answer: Corporate Online Booking Solutions, COBS

Difficulty: Difficult

AACSB: Application of knowledge

81) Describe the virtual merchant business model and its unique challenges in becoming financially viable.

Answer: Virtual merchants are single-channel Web firms that generate almost all their revenue from online sales. They face a number of challenges. They must build a business and brand name from scratch quickly, and face many virtual merchant competitors. They also face large costs in building and maintaining a Web site, building an order fulfillment infrastructure, and developing a brand name. Customer acquisition costs are high, and the learning curve is steep. Like all retail firms, their gross margins are low. Therefore, virtual merchants must achieve highly efficient operations in order to preserve a profit, while building a brand name as quickly as possible in order to attract sufficient customers to cover their costs of operations. Most merchants in this category adopt low-cost and convenience strategies, coupled with extremely effective and efficient fulfillment processes to ensure customers receive what they ordered as fast as possible.

Difficulty: Moderate

AACSB: Analytical thinking; Written and oral communication

82) Describe the vision of online retailing during the early days of e-commerce. Did these predictions and assumptions turn out to be true?

Answer: In the early days of e-commerce, entrepreneurial online retailers saw the Web as one of the largest market opportunities in the United States economy. They believed that entering the online retail market would be an easy proposition because the new marketing channel would revolutionize the retail industry. The belief was that the Internet would greatly reduce both search costs and transaction costs, causing consumers to use the Internet to find the lowest prices for products. This would result in consumers being increasingly drawn to the new channel, and only the low-cost, high-service quality e-tailers would survive. Economists assumed that Web consumers would be rational and cost-driven rather than brand-name and perceived-value driven.

The entrepreneurs also believed that entry costs to the online retail market would be much lower than the costs to establish a physical store, and that they could be more efficient at marketing and order fulfillment than their offline counterparts. They believed they could inexpensively create compelling Web sites that would attract customers and that these costs would no doubt be far less than the costs of warehouses, fulfillment centers, and physical stores. They severely underestimated the costs to build sophisticated order entry, shopping cart, and fulfillment systems because they believed the technology had already been developed and furthermore believed with technology prices falling every year, updating and building any other necessary systems would be economical.

With search engines almost instantaneously connecting consumers to relevant online vendors, customer acquisition costs would also be negligible. As prices fell, the unwieldy and outdated offline merchants would be driven out of business and the new entrepreneurs of the efficient online marketplace would take over. Smart entrepreneurs would exploit first mover advantages to take their place at the head of the online merchant class and the old general merchandisers would be locked out of the market.

In some industries, such as apparel, electronics, and digital content, the market would be disintermediated, eliminating the traditional "middlemen" as manufacturers and distributors built a direct relationship with the consumer. The Web would become the dominant channel replacing the physical stores, sales clerks, and sales forces. In other industries, retailers would outsource the warehousing and order-fulfillment functions and a kind of hypermediation would occur in which many intermediaries would perform the functions for the virtual firm.

Unfortunately for many failed businesses and many investors, these assumptions did not turn out to be correct. The structure of the retail marketplace remained intact, and consumers have proven to be less price sensitive than the economists expected. In online merchandising, the importance of brand names to consumers' perceptions of quality and service has been extended rather than decreased or eliminated. The retail marketplace was neither disintermediated nor revolutionized. Although an entirely new channel emerged, it today belongs not to the pure-play, Web only, first movers, but also to the multi-channel firms with established brand names.

Difficulty: Moderate

AACSB: Analytical thinking; Written and oral communication

83) Describe the state of the online retail sector today.

Answer: The online retail sector is the smallest segment of the total retail market but is growing faster than its offline counterparts. During the recession, online retail revenues were basically flat but they since have resumed their upward trajectory. More people than ever are shopping online, and millions more look for information about purchases they make at offline stores. Offline retailers who have the brand-name recognition, supportive infrastructure, and financial resources have entered the online marketplace successfully and continue to integrate their Web operations with their physical store operations in order to provide an "integrated shopping customer experience," and leverage the value of their physical stores. The most significant changes in retail e-commerce in 2013 are the explosive growth in social e-commerce, the growing ability of firms to market local services and products through the use of location-based marketing, and the rapidly growing mobile platform composed of smartphones and tablet computers. Tablets are being called "the ultimate shopping machine," enabling consumers to browse online catalogs just like they used to do with physical catalogs, and then buy when they feel the urge. Social network sites like Facebook and Pinterest have developed into major marketing and advertising platforms, directing consumers to external Web sites to purchase products. Social e-commerce is expected to almost triple by 2015. In addition, location-based mobile marketing and advertising solutions such as Groupon have enabled local merchants to inexpensively enter local mobile marketing.

Difficulty: Moderate

AACSB: Analytical thinking; Written and oral communication

84) Define *economic viability* and explain the factors involved in assessing a firm's economic viability.

Answer: Economic viability refers to the ability of firms to survive during a specified time period as profitable business firms. To analyze the economic viability of a firm, both strategic and financial assessments are conducted.

Strategic approaches to economic viability focus on both the industry in which a firm operates and the firm itself. Industry factors to examine include barriers to entry, which are expenses such as high capital costs, or intellectual property such as patents or copyrights held by other firms, which will make it difficult for new entrants to join the industry. The power of the suppliers and power of the customers in the industry must also be considered. If suppliers are sufficiently powerful they can charge higher prices, whereas if the manufacturers or retailers are more powerful they can bargain effectively for lower prices from their suppliers. The relative power of the customers determines whether or not they will be able to shop among the firm's competitors, thus keeping prices down. The existence of substitute products in an industry can also drive prices down if consumers have access to products with a similar function that they determine will fill their needs just as adequately. The industry value chain must be evaluated to determine if the chain of production and distribution for the industry is changing in ways that will benefit or harm the firm. Finally, the nature of the intra-industry competition must be evaluated to determine if the competition within the industry is based on differentiated products and services, price, the scope of the offerings or the focus of the offerings, and whether any imminent changes in the nature of the competition will benefit or harm the firm.

The strategic factors for the individual firm that are examined include the firm value chain, the core competencies of the firm, the synergies available to the firm, the technology used by the firm, and the social and legal challenges facing the firm. The firm value chain must be evaluated to determine if the firm has adopted business systems that will enable it to operate at peak efficiency and whether there are any looming technological changes that might force the firm to change its processes or methods. The core competencies of a firm are its unique skills that cannot be easily duplicated. When analyzing the economic viability of a firm it is important to consider whether technological changes might invalidate these competencies. Synergies refer to the availability to the firm of the competencies and assets of related firms that it owns or with which it has formed strategic partnerships. The firm's current technology must be evaluated to determine if it has proprietary technologies that will allow it to scale with demand and if it has developed the customer relationship, fulfillment, supply chain management, and human resources systems that it will need in order to be viable. Finally, the social and legal challenges facing the firm should be examined to determine if the firm has taken into account consumer trust issues such as the privacy and security of personal information and if the firm may be vulnerable to legal challenges.

The financial factors to analyze are the firm's revenues, cost of sales, gross margin, operating expenses, operating margin, and net margin. Revenues must be examined to determine if they are growing and at what rate. Cost of sales is the cost of the products sold including all related costs. The lower the cost of sales compared to revenue, the higher the gross profit. Gross margin is calculated by dividing gross profit by net sales. If the gross margin is improving consistently, the economic outlook for the firm is enhanced. Operating expenses such as marketing, technology, and administrative costs should be evaluated to determine if the firm's needs in the near interim will necessitate increased outlays. Large increases in operating expenses may result in net losses for the firm. Operating margin tells us if the firm's current operations are covering its operating expenses, not including interest expenses and other non-operating expenses. Net margin is calculated by dividing net income or net loss by net sales. It evaluates the net profit or loss for each dollar in sales. For example, a net margin of 12% indicates that a firm is making 12 cents on each dollar in sales. These figures can be found on a firm's consolidated statement of operations and summary balance sheet. A thorough strategic and financial analysis will often reveal the true economic prospects for a firm in the near to medium term.

Difficulty: Difficult

AACSB: Analytical thinking; Written and oral communication

85) Identify and discuss the key features of the online insurance industry.

Answer: The insurance industry is part of the financial services sector. It has four major segments: automobile, life, health, and property and casualty. Insurance products can be very complex and have not become true online products. Some policies can only be explained by an experienced sales agent and there are many types of policies and products—for example, different types of non-automotive property and casualty insurance. In addition to the complexity of the product, other distinguishing characteristics make it difficult for it to be completely transferred to the new online channel, such as a traditional reliance on thousands of local insurance offices and agents to sell complex products uniquely suited to the circumstances of the insured person and/or property. In addition, the industry is regulated not at the federal level but separately in each state, with differing regulations, successful in attracting visitors who are looking to obtain prices and terms of insurance policies. While many national insurance underwriting companies initially did not offer competitive products directly on the Web because it might injure the business operations of their traditional local agents, the Web sites of almost all of the major firms now provide the ability to obtain an online quote. Even if consumers do not actually purchase insurance policies online, the Internet has proven to have a powerful influence by dramatically reducing search costs and changing the price discovery process.

Difficulty: Difficult

AACSB: Analytical thinking; Written and oral communication

86) Explain why online career services are so well suited to the Web.

Answer: Next to travel services, job-hunting services have been one of the Internet's most successful online services because they save money for both job hunters and employers. Job resumes can be posted for free, many other career-related services can be easily accessed, and for a fee, job hunters can access lists of job openings that have been posted by companies.

Online recruiting provides a more efficient and cost-effective means of linking employers and job hunters and reduces the total time-to-hire. Job hunters can easily build, update, and distribute their resumes, conduct job searches, and gather information on employers at their convenience and leisure. They can also take skills assessment tests, fill out personality assessment questionnaires, and access such services as personalized account management for job hunters, job search tools, employer blocking tools, organizational culture assessments, and e-mail notifications when an appropriate job is newly listed on the site.

Career recruitment is an information-intense business process that the Internet can automate, thus reducing search time and costs for all parties. In addition to matching job applicants with available positions, online sites also serve the larger function of automating this information-intense business process.

Difficulty: Moderate

AACSB: Analytical thinking; Written and oral communication

**E-Commerce 2014, 10e (Laudon/Traver)**  
**Chapter 10 Online Content and Media**

- 1) The publishing and entertainment industries make up the largest share of the commercial content marketplace, both online and offline

Answer: TRUE

Difficulty: Moderate

AACSB: Application of knowledge

- 2) The average American still spends more time watching television than using the Internet.

Answer: TRUE

Difficulty: Moderate

AACSB: Application of knowledge

- 3) The impact of the Internet on media appears to be decreasing the total demand for media.

Answer: FALSE

Difficulty: Moderate

AACSB: Application of knowledge

- 4) Internet users consume more media of all types than non-Internet users.

Answer: TRUE

Difficulty: Moderate

AACSB: Application of knowledge

- 5) Today, the Internet generates over 25% of total media revenues.

Answer: FALSE

Difficulty: Difficult

AACSB: Application of knowledge

- 6) The a la carte revenue model allows users to pay only for what they use.

Answer: TRUE

Difficulty: Moderate

AACSB: Application of knowledge

- 7) Videos are the fastest growing form of paid content.

Answer: TRUE

Difficulty: Moderate

AACSB: Application of knowledge

- 8) The overall size of the online video audience is about the same size as the traditional television audience.

Answer: TRUE

Difficulty: Easy

AACSB: Application of knowledge

9) Smartphones are an example of technological convergence.

Answer: TRUE

Difficulty: Moderate

AACSB: Application of knowledge

10) Online readership of newspapers is declining by more than 10% a year.

Answer: FALSE

Difficulty: Moderate

AACSB: Application of knowledge

11) Cannibalization is a major challenge facing book publishers.

Answer: TRUE

Difficulty: Easy

AACSB: Application of knowledge

12) In the wholesale model of e-book distribution, pricing power is with the retailer.

Answer: TRUE

Difficulty: Moderate

AACSB: Application of knowledge

13) By 2016, online movies are expected to surpass music as the largest form of online revenue in terms of revenue.

Answer: TRUE

Difficulty: Moderate

AACSB: Application of knowledge

14) The entertainment industry is generally considered to be composed of five players: television, Hollywood films, music, radio, and video games.

Answer: TRUE

Difficulty: Difficult

AACSB: Application of knowledge

15) In 2013, the social gaming market is the fastest growing form of online gaming.

Answer: FALSE

Difficulty: Moderate

AACSB: Application of knowledge

16) Which of the following is *not* a current trend in online content?

A) Sales of music in digital form produce more revenue than sales of physical units.

B) Readership of newspapers in print form continues to exceed online readership.

C) The growth of tablets spurs a growth in online magazine revenues.

D) Console game sales stagnate in comparison to online gaming.

Answer: B

Difficulty: Moderate

AACSB: Application of knowledge

17) Which of the following streaming movie and TV services is a joint venture between traditional entertainment producers?

- A) Netflix
- B) Hulu
- C) Zynga
- D) VUDU

Answer: C

Difficulty: Easy

AACSB: Application of knowledge

18) Which of the following type of online content does the highest percentage of Internet users purchase or view online?

- A) newspapers
- B) radio
- C) games
- D) music

Answer: A

Difficulty: Moderate

AACSB: Application of knowledge

19) Which of the following three forms of media account for over 77% of the hours spent consuming media?

- A) television, radio, and the Internet
- B) television, magazines, and the Internet
- C) the Internet, radio, and newspapers
- D) television, the Internet, and newspapers

Answer: A

Difficulty: Moderate

AACSB: Application of knowledge

20) In comparison to hours spent at work, the average American adult spends \_\_\_\_\_ consuming various media.

- A) a quarter as much time
- B) a third as much time
- C) an equivalent amount of time
- D) twice as much time

Answer: D

Difficulty: Moderate

AACSB: Application of knowledge

21) Which of the following generates the largest share of media revenues?

- A) video games
- B) television
- C) newspapers
- D) radio

Answer: B

Difficulty: Moderate

AACSB: Application of knowledge

22) Which of the following is the fastest growing segment of media revenues?

- A) television
- B) home video
- C) Internet media
- D) newspapers

Answer: C

Difficulty: Moderate

AACSB: Application of knowledge

23) In 2013, total paid online content was estimated to be:

- A) 150 million.
- B) 1.5 billion.
- C) 15 billion.
- D) 150 billion.

Answer: C

Difficulty: Moderate

AACSB: Application of knowledge

24) All of the following are examples of technology convergence *except*:

- A) the iPad.
- B) Amazon Books Publishing.
- C) Apple TV.
- D) smartphones.

Answer: B

Difficulty: Easy

AACSB: Application of knowledge

25) All of the following are aspects of content convergence *except*:

- A) language.
- B) design.
- C) production.
- D) distribution.

Answer: A

Difficulty: Easy

AACSB: Application of knowledge

26) Which of the following occurs *first* in the process of content convergence?

- A) media integration
- B) media migration
- C) media transformation
- D) media maturity

Answer: B

Difficulty: Difficult

AACSB: Application of knowledge

27) Which are the two most popular activities in terms of online content on the Internet?

- A) newspapers and radio
- B) movies and TV
- C) books and magazines
- D) TV and games

Answer: A

Difficulty: Easy

AACSB: Application of knowledge

28) Which of the following is the fastest growing paid content area?

- A) online radio
- B) online games
- C) online music
- D) online video

Answer: D

Difficulty: Moderate

AACSB: Application of knowledge

29) All of the following statements about the online video audience are true *except*:

- A) major television events tend to draw higher viewership than online videos.
- B) the online video audience is around 180 million monthly unique viewers.
- C) YouTube draws the highest number of monthly unique viewers of online video.
- D) the overall size of the online video audience is much smaller than the traditional television audience.

Answer: D

Difficulty: Moderate

AACSB: Analytic skills

30) Which of the following was the most troubled segment of the publishing industry in 2013?

- A) books
- B) magazines
- C) newspapers
- D) periodicals

Answer: C

Difficulty: Moderate

AACSB: Application of knowledge

31) All of the following are true about the newspaper industry *except*:

- A) newspaper management has been sluggish to respond to the opportunities on the Internet for news.
- B) online readership of newspapers is declining.
- C) newspaper management overly protected content from being distributed by aggregators.
- D) offline readership of newspapers is increasing.

Answer: B

Difficulty: Moderate

AACSB: Application of knowledge

32) Which of the following online newspaper sites or groups attracts the highest number of daily unique visitors?

- A) *USA Today*
- B) *Washington Post*
- C) *Wall Street Journal*
- D) *The New York Times*

Answer: D

Difficulty: Moderate

AACSB: Application of knowledge

33) In 2013, YouTube announced:

- A) 100 new channels.
- B) paid-subscription channels.
- C) movie-streaming channels.
- D) new channels for live streaming of special broadcast TV events.

Answer: B

Difficulty: Moderate

AACSB: Application of knowledge

34) Which of the following is *not* one of the factors required to charge for online content?

- A) multiple delivery methods
- B) focused market
- C) specialized content
- D) high perceived net value

Answer: A

Difficulty: Moderate

AACSB: Application of knowledge

35) Which of the following is *not* a major contributing factor to net value?

- A) providing instantaneous, online access to information
- B) providing large, searchable historical archives
- C) enabling consumers to move online information to other documents easily
- D) offering a variety of subscription models

Answer: D

Difficulty: Moderate

AACSB: Application of knowledge

36) Approximately \_\_\_\_\_ of the Internet population in the United States reads magazines online.

- A) one-quarter
- B) one-third
- C) one-half
- D) three-quarters

Answer: B

Difficulty: Easy

AACSB: Application of knowledge

37) Digital magazine revenues are expected to \_\_\_\_\_ over the next few years.

- A) remain stable
- B) more than double
- C) grow 10% a year
- D) continue to decrease

Answer: C

Difficulty: Moderate

AACSB: Application of knowledge

38) All of the following typically favor the elimination of DRM *except*:

- A) hackers.
- B) technology companies.
- C) content owners.
- D) telecommunications pipeline companies.

Answer: C

Difficulty: Difficult

AACSB: Application of knowledge

39) DRM refers to a combination of \_\_\_\_\_ for protecting digital content.

- A) hardware and software methods
- B) technical and legal means
- C) user and publisher agreements
- D) local and remote policies

Answer: B

Difficulty: Easy

AACSB: Application of knowledge

40) There are approximately \_\_\_\_\_ online newspapers in the world.

- A) 1,000
- B) 10,000
- C) 25,000
- D) 50,000

Answer: B

Difficulty: Moderate

AACSB: Application of knowledge

41) Around how many page views do online newspapers generate in a typical month?

- A) 41 million
- B) 410 million
- C) 4.1 billion
- D) 41 billion

Answer: C

Difficulty: Moderate

AACSB: Application of knowledge

- 42) Which of the following *best* describes the online newspaper industry's revenue model?
- A) mostly successful implementation of the subscription-fee model
  - B) struggling to successfully implement a fee-based model
  - C) abandonment of the subscription-fee model and return to free model
  - D) mix of revenues from classified ad sales and subscription fees

Answer: B

Difficulty: Moderate

AACSB: Application of knowledge

- 43) Which of the following statements about the online newspaper audience is *not* true?
- A) Online newspaper readership is growing at 17% a year.
  - B) The online newspaper audience is highly engaged.
  - C) The people who read newspapers online tend to be less educated than those who visit YouTube.
  - D) Online newspapers reach over 75% of individuals in households earning more than \$100,000 a year.

Answer: C

Difficulty: Difficult

AACSB: Application of knowledge

- 44) Who was the first major fiction writer to create an e-book-only volume of a new work?

- A) Mary Higgins Clark
- B) Stephen King
- C) Dan Brown
- D) Anne Rice

Answer: B

Difficulty: Moderate

AACSB: Application of knowledge

- 45) In 2013, Amazon's e-book and media store contained around how many book titles?

- A) about 10,000
- B) about 100,000
- C) about 1 million
- D) about 10 million

Answer: C

Difficulty: Moderate

AACSB: Application of knowledge

- 46) Which of the following is the earliest precursor to today's e-books and e-book readers?

- A) Apple iPod
- B) Project Gutenberg
- C) Franklin Reader
- D) Voyager Company's multimedia CDs

Answer: B

Difficulty: Difficult

AACSB: Application of knowledge

47) As of 2013, around how many Kindles of all types have been sold in the United States?

- A) 8 million
- B) 80 million
- C) 800 million
- D) 8 billion

Answer: C

Difficulty: Moderate

AACSB: Application of knowledge

48) E-book sales in 2013 were approximately:

- A) \$58 million.
- B) \$580 million.
- C) \$5.8 billion.
- D) \$58 billion.

Answer: C

Difficulty: Moderate

AACSB: Application of knowledge

49) Which of the following is used by the highest percentage of people to read e-books?

- A) PC
- B) e-reader such as a Kindle or Nook
- C) cell phone
- D) tablet computer

Answer: A

Difficulty: Moderate

AACSB: Application of knowledge

50) In 2013, around what percentage of Americans had read an e-book?

- A) 5%
- B) 15%
- C) 20%
- D) 30%

Answer: C

Difficulty: Easy

AACSB: Application of knowledge

51) Which of the following statements about the wholesale and agency models for selling books is *not* true?

- A) In the wholesale model, the retailer decides at what price to sell a book to the consumer.
- B) Amazon surprised traditional publishers by selling e-books for below their wholesale cost.
- C) The Justice Department sued Amazon for engaging in predatory pricing.
- D) The agency model was developed in response to Amazon's pricing strategies.

Answer: C

Difficulty: Difficult

AACSB: Application of knowledge

52) Zinio is an example of which of the following?

- A) interactive book developer
- B) magazine aggregator
- C) e-reader platform
- D) vanity press

Answer: B

Difficulty: Moderate

AACSB: Application of knowledge

53) All of the following are subscription services *except*:

- A) Pandora.
- B) Spotify.
- C) iTunes.
- D) Rhapsody.

Answer: C

Difficulty: Moderate

AACSB: Application of knowledge

54) All of the following statements about the movie industry are true *except*:

- A) over 90 million Americans were expected to watch movies online in 2013.
- B) in 2013, consumers paid more for online movie viewing than for DVDs or related physical products.
- C) online movie viewing is growing faster than all video viewing.
- D) Internet and online distribution now make up the largest share of movie revenues.

Answer: D

Difficulty: Moderate

AACSB: Application of knowledge

55) Which of the following is *not* a leading factor in changing the television industry?

- A) increasing broadband penetration
- B) development of the mobile platform
- C) a willing industry with a library of high-quality content
- D) inability to attract customers to traditional products

Answer: D

Difficulty: Difficult

AACSB: Application of knowledge

56) All of the following statements about the television and premium video industry are true *except*:

- A) the current transition to Internet delivery of television is leading to a decline in traditional television viewing.
- B) television is the largest content provider in the United States.
- C) the largest online video distributor is Apple's iTunes.
- D) over-the-top entertainment services are a threat to cable television distributors.

Answer: A

Difficulty: Moderate

AACSB: Application of knowledge

57) All of the following are reasons why the movie industry is likely to be less disrupted by the Internet than the music industry *except*:

- A) movies are more difficult to move around the Web without detection.
- B) movies typically have far larger file sizes than music tracks.
- C) the movie industry is a concentrated oligopoly.
- D) there are fewer firms competing for distribution rights.

Answer: D

Difficulty: Difficult

AACSB: Application of knowledge

58) In 2013, approximately how much were consumers expected to spend on digital music?

- A) \$39 million
- B) \$390 million
- C) \$3.9 billion
- D) \$39 billion

Answer: C

Difficulty: Moderate

AACSB: Application of knowledge

59) Which of the following is the largest producer of revenues in the entertainment industry?

- A) radio
- B) television
- C) films
- D) video games

Answer: B

Difficulty: Moderate

AACSB: Application of knowledge

60) Which form of online entertainment is expected to generate the most revenue in 2016?

- A) TV
- B) games
- C) music
- D) motion pictures

Answer: D

Difficulty: Moderate

AACSB: Application of knowledge

61) In 2013, which of the following forms of online entertainment produced the least amount of revenue?

- A) radio
- B) TV
- C) games
- D) motion pictures

Answer: A

Difficulty: Moderate

AACSB: Application of knowledge

62) In 2013, which of the following comprised the largest segment of the online gaming audience?

- A) social gamers
- B) mobile gamers
- C) casual gamers
- D) console gamers

Answer: B

Difficulty: Difficult

AACSB: Application of knowledge

63) Music download networks offer:

- A) high user control and high user focus.
- B) high user control and low user focus.
- C) low user control and high user focus.
- D) low user control and low user focus.

Answer: A

Difficulty: Difficult

AACSB: Application of knowledge

64) Traditional media programming offers:

- A) high user control and high user focus.
- B) high user control and low user focus.
- C) low user control and high user focus.
- D) low user control and low user focus.

Answer: D

Difficulty: Moderate

AACSB: Application of knowledge

65) Which of the following is the fastest growing online gaming audience?

- A) casual gamers
- B) mobile gamers
- C) social gamers
- D) console gamers

Answer: B

Difficulty: Moderate

AACSB: Application of knowledge

66) Google \_\_\_\_\_ is Google's version of Apple's iTunes store.

Answer: Play

Difficulty: Moderate

AACSB: Application of knowledge

67) \_\_\_\_\_ describes the development of hybrid devices that can combine the functionality of two or more existing media platforms into a single device.

Answer: Technological convergence

Difficulty: Easy

AACSB: Application of knowledge

68) Content convergence describes convergence in the design, production, and \_\_\_\_\_ of content.

Answer: distribution

Difficulty: Moderate

AACSB: Application of knowledge

69) \_\_\_\_\_ convergence involves the merger of media enterprises into synergistic combinations that can create and cross-market content on different platforms.

Answer: Industry

Difficulty: Moderate

AACSB: Application of knowledge

70) Next to iTunes, \_\_\_\_\_ is the second largest music service.

Answer: Pandora

Difficulty: Moderate

AACSB: Application of knowledge

71) Amazon's Kindle uses a kind of DRM sometimes referred to as a(n) \_\_\_\_\_ to restrict the widespread sharing of content.

Answer: walled garden

Difficulty: Moderate

AACSB: Information technology

72) A business model that uses advertising revenue to provide some content for free, combined with an option to obtain additional content for a price is called a(n) \_\_\_\_\_ model.

Answer: freemium

Difficulty: Easy

AACSB: Application of knowledge

73) \_\_\_\_\_ refers to that portion of perceived customer value that can be attributed to the fact that content is available on the Internet.

Answer: Net value

Difficulty: Moderate

AACSB: Application of knowledge

74) In \_\_\_\_\_, sales of new digital products replace sales of traditional products.

Answer: cannibalization

Difficulty: Moderate

AACSB: Application of knowledge

75) Amazon's \_\_\_\_\_ is not just an e-book reader but also a media and entertainment portable device.

Answer: Kindle Fire

Difficulty: Moderate

AACSB: Application of knowledge

76) \_\_\_\_\_ refers to the use of the Internet to deliver entertainment services to the home.

Answer: Over-the-top (OTT)

Difficulty: Difficult

AACSB: Application of knowledge

77) In the \_\_\_\_\_ model for e-books, prices are set by the publisher.

Answer: agency

Difficulty: Moderate

AACSB: Application of knowledge

78) In the \_\_\_\_\_ model, successful online content distributors create their own content for exclusive distribution.

Answer: Internet innovator

Difficulty: Moderate

AACSB: Application of knowledge

79) An example of \_\_\_\_\_ is a song downloaded from Rhapsody that expires, or cannot be played, if your monthly subscription fee is not paid.

Answer: digital rights management (DRM)

Difficulty: Moderate

AACSB: Application of knowledge

80) Apple's Newsstand is an example of a(n) \_\_\_\_\_.

Answer: magazine aggregator

Difficulty: Moderate

AACSB: Application of knowledge

81) Explain the concept of media convergence.

Answer: The term *media convergence* refers to digitally based changes in technology platform, content, and industry structure. Technological convergence means the integration of previously separate platform functionality into hybrid devices that can combine the functionality of many different existing media platforms such as books, newspapers, television, radio, and stereo equipment.

Content convergence has three dimensions: design, production, and distribution. Content design convergence occurs as content created in an older media technology is transferred to a new technology. Historically the initial transference involves little artistic change, but as the artists and producers learn how to use the new tools and how to deliver content more efficiently in the new media the new capabilities can be fully exploited and the art becomes measurably different. Content production convergence occurs when content, which is the most significant cost of content, is developed only once using technology that can deliver it to multiple different platforms. Production convergence drives content convergence as new tools are developed for economically producing content for delivery to multiple platforms. For example, the text produced in a word processing program can be easily converted to an HTML or PDF file for Web delivery. Distribution convergence occurs when the distributors and ultimate consumers have the devices needed to receive, store, and experience the product.

Industry convergence refers to the merger of media enterprises into powerful, synergistic combinations that can cross-market content on many different platforms and create new works that use multiple platforms. Traditionally, each type of media—film, text, music, television—had its own separate industry, typically composed of very large players. However, the Internet has created forces that make the merger of traditionally separate firms in separate media industries a plausible—perhaps necessary—business proposition.

Difficulty: Moderate

AACSB: Analytical thinking; Written and oral communication

82) Describe the three basic revenue models for digital content delivery.

Answer: There are three revenue models for delivering content on the Internet. The two "pay" models are subscription (usually "all you can eat," meaning the amount of content that you can consume is unlimited) and a la carte (pay only for what you use). The third model uses advertising revenue to provide content for free, often with a "freemium" option, which makes additional content available for a cost. In many cases, all three of the models work in tandem and cooperatively: free content can drive customers to paid content, as music companies have discovered with services such as Pandora.

Difficulty: Moderate

AACSB: Analytical thinking; Written and oral communication

83) How is the television industry being impacted by the Internet?

Answer: The television industry has become the major source of premium video on the Internet. It is beginning a transition to a new delivery platform: the Internet and mobile smartphones and tablet computers. This new platform is not leading to a decline in traditional television viewing, which has in fact decreased. Instead, it is just changing how, when, and where consumers can watch TV. Cloud computing has created a shift away from the ownership of content and instead a focus on access to content anywhere, anytime, from any device. Social networks have enabled a new kind of "social TV" where consumers share comments while viewing television shows. Expansion of broadband networks and the growth of cloud servers has also enabled the growth of a whole new class of television distributors. Whereas the dominant way consumers obtained a TV signal in the past was from over-the-air broadcasters, cable TV, or satellite distributors, a new "over-the-top" channel has developed led by powerful technology companies such as Apple, Google, Hulu, VUDU, Netflix, and others, all of whom offer consumers access to television shows. The services ride "on top" of other network services like cable TV and telephone service. It's as if there is a new "Internet Broadcasting System" with many new players, which is obviously a threat to cable television and the other distributors, who, in turn, have their own on-demand services for television. In some cases, these new distributors have also begun to get into the content production business by creating their own TV shows.

While the Internet has not diminished TV viewing, it has transformed how, when, and where TV shows are watched. While the TV may be the biggest screen in the house, it now has to compete or share with other digital devices, such as smartphones, tablet computers, and game consoles. The Internet and new mobile platform are changing the viewing experience, making it more of a social experience extending beyond family and friends in the same room. In 2013, the social circle expanded to include Facebook and Twitter friends in different locations, changing television viewing from a "lean back and enjoy" experience into a "lean forward and engage" experience.

Challenges lie ahead for the television industry however. With so much video and television now available online "for free," many users are thinking about "cutting the cable cord" and just relying on the Internet for their video entertainment. Other viewers are "cord shavers" who have reduced their subscriptions to digital channels. So far this phenomenon has been limited, but the high service fees for cable television service and expanding Internet capabilities suggest that the future of traditional cable systems may be challenged.

Difficulty: Difficult

AACSB: Analytical thinking; Written and oral communication

84) Why are newspapers the most troubled segment of the publishing industry? Is there any good news on the horizon for newspapers?

Answer: Newspapers in 2013 were the most troubled segment of the publishing industry, troubles that result almost exclusively from the availability of alternatives to the printed newspaper, as well as a sluggish response by management to the opportunities on the Internet for news, if not newspapers. Also important is the failure of newspaper management to protect its valuable content from being distributed for free by headline aggregators such as Yahoo, MSN, and Google, as well as tens of millions of bloggers and tweeters. These search firms can index online newspaper content, and provide search results to users' queries (as they display ads to those same users and derive revenue). While these search firms do link to the actual newspaper articles, they have in the meantime generated revenue for themselves based on the newspaper article contents.

Over 60% of newspapers have reduced news staff in the last three years, and 61% report shrinking the size of the newspaper. Readership has been declining for 10 years, print edition advertising is down 15% a year, subscriptions are down, and old print readers are not being replaced by young readers, who instead get their news online. To make matters worse, in the slow growth period of 2010—2013, online ads declined another 16%, and the amount spent on Internet advertising in general now equals that spent on newspaper advertising. Alternative online sources such as Yahoo, Google, and even blogs, have become major sources of news for many Americans. Much of this "news" is redistributed content generated by newspapers. Alternatives to newspaper classified ads like Craigslist have decimated newspaper classified revenues.

But there is some good news too. Online readership of newspapers is growing at more than 10% a year. New reading devices from smartphones to e-readers, iPads, and tablet PCs connected to wireless networks offer opportunities for online newspapers to be read everywhere. A new Internet culture is supportive of paying for quality content. Newspaper owners, faced with extinction, are exploring ways to protect their content, and are introducing paid "premium" news and views, a la carte purchase of articles, subscriptions to digital versions, and online apps for mobile devices.

Difficulty: Moderate

AACSB: Analytical thinking; Written and oral communication

85) What are the major challenges facing book publishers?

Answer: There are two major challenges facing book publishers: cannibalization and finding the right business model. Cannibalization in digital markets refers to the potential for new digital products to rapidly reduce the sales of existing physical products. This can be a threat to digital content firms insofar as the prices and profits available from selling digital products are much lower than prices and profits from physical products. Sometimes the situation is complicated by large online digital distributors such as Amazon, who want to maximize their sales of physical devices by offering free or low-priced content, and have little short-term interest in protecting the profits of content owners and producers. The evidence from book publishing with respect to cannibalization is mixed so far. Overall, book publishing revenues in 2012 were \$27 billion, about the same as the previous year. As digital revenues have expanded, print book sales have gone down about \$1 billion from the previous year. The overall picture that emerges is that the rapid growth of e-books and online sales has lowered sales of physical books in brick-and-mortar stores. However, much of this lost revenue is being made up by the growth in e-book sales online. Total readership has increased with the popularity of e-books and the widespread adoption of Kindles and iPads. Finding the right business model is also a challenge. The e-book industry is composed of intermediary retailers (both brick-and-mortar stores and online merchants), traditional publishers, technology developers, device makers (e-readers), and vanity presses (self-publishing service companies). Together, these players have pursued a wide variety of business models and developed many alliances in an effort to move text onto the computer screen.

Difficulty: Moderate

AACSB: Analytical thinking; Written and oral communication

86) Discuss the industry structure of the online entertainment industry and how it might be improved.

Answer: The existing industry value chain for the entertainment industry is highly inefficient and fractured. For the entertainment industry to move aggressively onto the Web there needs to be a reorganization of the value chain either through corporate mergers or strategic alliances, or both. In the process of reorganization, traditional distributors (like cable TV and broadcast television) most likely will experience severe disruptions to their business models as the Internet replaces them as a distribution medium.

The entertainment industry has never been a neat and tidy industry to describe. There are many players and forces that shape the industry. In the existing model, creators of entertainment such as music labels or television producers sell to distributors, that in turn sell to local retail stores or local television stations, that then sell or rent to consumers.

One possible alternative is the *content owner direct model*. The Internet offers entertainment content producers the opportunity to dominate the industry value chain by eliminating the distributors and retailers and selling directly to the consumer. A second possibility is the *aggregator model*. In this model, Web-based intermediaries such as Google that aggregate large audiences enter into strategic alliances with content owners to provide content to the aggregators. A third possible model is the *Internet innovator model* in which successful Internet technology companies that develop the technology platforms such as Apple as well as Internet communications platform providers move back into the value chain and begin creating their own content for distribution on their proprietary platform or channels. This is the most likely development in industry structure, and has already begun to happen, for example with the move of Google's YouTube into the content creation business.

Difficulty: Difficult

AACSB: Analytical thinking; Written and oral communication

1) Social network participation is one of the most common usages of the Internet.

Answer: TRUE

Difficulty: Moderate

AACSB: Application of knowledge

2) The average user spends more time on Google+ than on Facebook.

Answer: FALSE

Difficulty: Easy

AACSB: Application of knowledge

3) Sponsored community sites are network sites created by government, non-profit, or for-profit organizations.

Answer: TRUE

Difficulty: Moderate

AACSB: Application of knowledge

4) In C2C auctions, a business owns or controls assets and uses dynamic pricing to establish the price.

Answer: FALSE

Difficulty: Moderate

AACSB: Application of knowledge

5) Auction fraud accounts for the highest percentage of total Internet fraud reported to the Internet Crime Complaint Center.

Answer: FALSE

Difficulty: Moderate

AACSB: Application of knowledge

6) Priceline's auctions are seller-biased.

Answer: FALSE

Difficulty: Difficult

AACSB: Application of knowledge

7) In a Dutch Internet auction, the highest price wins.

Answer: FALSE

Difficulty: Moderate

AACSB: Application of knowledge

8) Keeping bid increments low increases the number of bidders and the frequency of their bids.

Answer: TRUE

Difficulty: Moderate

AACSB: Application of knowledge

9) Closed bidding permits price discrimination without offending buyers.

Answer: TRUE

Difficulty: Moderate

AACSB: Application of knowledge

10) Auction prices are always lower than prices in fixed priced markets.

Answer: FALSE

Difficulty: Moderate

AACSB: Application of knowledge

11) Consumers in auctions are driven solely by value maximization.

Answer: FALSE

Difficulty: Moderate

AACSB: Application of knowledge

12) Portals are among the most frequently visited types of sites on the Web.

Answer: TRUE

Difficulty: Moderate

AACSB: Application of knowledge

13) The value of portals to advertisers and content owners is primarily a function of the size of the audience the portal reaches and the length of time visitors stay on the site.

Answer: TRUE

Difficulty: Easy

AACSB: Application of knowledge

14) Revenue per customer decreases as the audience focus of a portal moves from general audience to a more focused and targeted audience.

Answer: FALSE

Difficulty: Moderate

AACSB: Application of knowledge

15) Most of today's well-known portals began as search engines.

Answer: TRUE

Difficulty: Easy

AACSB: Application of knowledge

16) One of the first online virtual communities was:

A) The Well.

B) Myspace.

C) AOL.

D) Salon.com.

Answer: A

Difficulty: Moderate

AACSB: Application of knowledge

17) Which of the following was a primary feature of early online communities?

- A) chat
- B) network discovery
- C) widgets
- D) message boards

Answer: D

Difficulty: Moderate

AACSB: Application of knowledge

18) Which of the following is a community of members who self-identify with a demographic or geographic category?

- A) practice network
- B) sponsored community
- C) affinity community
- D) interest-based social network

Answer: C

Difficulty: Moderate

AACSB: Application of knowledge

19) iVillage.com is an example of a(n):

- A) interest-based social network.
- B) affinity community.
- C) sponsored community.
- D) practice network.

Answer: B

Difficulty: Moderate

AACSB: Application of knowledge

20) A Web site designed to give parents of home-schooled children a common discussion area would be classified as a(n):

- A) interest-based social network.
- B) affinity community.
- C) practice network.
- D) sponsored community.

Answer: A

Difficulty: Moderate

AACSB: Application of knowledge

21) Facebook is an example of a(n):

- A) interest-based social network.
- B) affinity community/social network.
- C) general community/social network.
- D) practice network.

Answer: C

Difficulty: Moderate

AACSB: Application of knowledge

22) Which social network functionality allows users to easily post messages to the entire community?

- A) message board
- B) chat
- C) instant messaging
- D) e-mail

Answer: A

Difficulty: Moderate

AACSB: Application of knowledge

23) Around what percentage of Internet users in the United States use social networks on a regular basis?

- A) 25 %
- B) 33%
- C) 50%
- D) 67%

Answer: D

Difficulty: Moderate

AACSB: Application of knowledge

24) \_\_\_\_\_ pricing adjusts prices based on the location of the consumer.

- A) Personalization
- B) Utilization
- C) Trigger
- D) Fixed

Answer: C

Difficulty: Moderate

AACSB: Application of knowledge

25) All of the following statements about social networks are true *except*:

- A) Yahoo visitors spend more than twice as much time on Yahoo as Facebook visitors spend on Facebook.
- B) much more is spent on advertising on portals than on social networks.
- C) Facebook's share of the total social market is declining.
- D) the response to display ads on Facebook is lower than on portal sites.

Answer: A

Difficulty: Moderate

AACSB: Application of knowledge

26) Which of the following types of dynamic pricing adjusts prices based on the merchant's estimate of how much the customer truly values the product?

- A) personalization
- B) trigger
- C) utilization
- D) fixed

Answer: A

Difficulty: Moderate

AACSB: Application of knowledge

27) Adjusting the annual cost of automobile insurance based on mileage driven is an example of \_\_\_\_\_ pricing.

- A) personalization
- B) trigger
- C) utilization
- D) fixed

Answer: C

Difficulty: Moderate

AACSB: Application of knowledge

28) In 2012, the total worth of goods sold on eBay was approximately:

- A) \$75 million.
- B) \$750 billion.
- C) \$7.5 billion.
- D) \$75 billion.

Answer: D

Difficulty: Moderate

AACSB: Application of knowledge

29) All of the following statements are true *except*:

- A) in auctions, prices may be variable or fixed.
- B) auctions constituted a significant part of B2B e-commerce in 2013.
- C) over a third of procurement officers use auctions to procure goods.
- D) online retail sites are adding auctions to their sites.

Answer: A

Difficulty: Moderate

AACSB: Application of knowledge

30) In 2013, Facebook visitors spent about \_\_\_\_\_ hours a month on Facebook.

- A) 1.5 hours
- B) 3 hours
- C) 7 hours
- D) 15 hours

Answer: C

Difficulty: Moderate

AACSB: Application of knowledge

31) All of the following are benefits of auctions *except*:

- A) more efficient price discovery.
- B) lower transaction costs.
- C) decreased price transparency.
- D) increased market efficiency.

Answer: C

Difficulty: Moderate

AACSB: Application of knowledge

32) Which of the following is the market leader in C2C auctions?

- A) Amazon
- B) eBay
- C) Yahoo
- D) Craigslist

Answer: B

Difficulty: Easy

AACSB: Application of knowledge

33) Which of the following is *not* a risk or cost of Internet auctions?

- A) delayed consumption costs
- B) equipment costs
- C) price transparency
- D) trust risks

Answer: C

Difficulty: Moderate

AACSB: Application of knowledge

34) The fact that participating in an Internet auction means that you will need to purchase a computer, learn to use it, and pay for Internet access, is an example of \_\_\_\_\_ costs.

- A) equipment
- B) fulfillment
- C) delayed consumption
- D) monitoring

Answer: A

Difficulty: Moderate

AACSB: Application of knowledge

35) All of the following are solutions to the problem of high monitoring costs *except*:

- A) seller rating systems.
- B) watch lists.
- C) proxy bidding.
- D) fixed pricing.

Answer: A

Difficulty: Moderate

AACSB: Application of knowledge

36) In \_\_\_\_\_ pricing, customers change their offers to buy based on both their perceptions of the seller's desire to sell and their own need for the product.

- A) trigger
- B) personalization
- C) utilization
- D) dynamic

Answer: D

Difficulty: Moderate

AACSB: Application of knowledge

37) Which of the following allows the consumer to enter a maximum price and the auction software automatically bids up the goods to that maximum price in small increments?

- A) watch lists
- B) proxy bidding
- C) sealed bidding
- D) price matching

Answer: B

Difficulty: Moderate

AACSB: Application of knowledge

38) A market that has many sellers and one or few buyers is likely to be:

- A) market neutral.
- B) seller-biased.
- C) buyer-biased.
- D) both seller- and buyer-biased.

Answer: C

Difficulty: Moderate

AACSB: Application of knowledge

39) BlackPlanet is an example of a(an) \_\_\_\_\_ social network.

- A) practice-based
- B) interest-based
- C) affinity-based
- D) general

Answer: C

Difficulty: Moderate

AACSB: Application of knowledge

40) When there are few sellers but many buyers, a market will typically be:

- A) neutral (dominated by negotiation).
- B) seller-biased.
- C) buyer-biased.
- D) neutral, in the manner of a stock exchange.

Answer: B

Difficulty: Moderate

AACSB: Application of knowledge

41) Which of the following is a common problem in sealed bid markets?

- A) bid rigging
- B) discriminatory pricing
- C) persistent bidding
- D) seller nonperformance

Answer: A

Difficulty: Moderate

AACSB: Application of knowledge

42) When sellers agree informally or formally to set floor prices below which they will not sell on auction items, this is known as:

- A) discriminatory pricing.
- B) price matching.
- C) bid rigging.
- D) the uniform pricing rule.

Answer: B

Difficulty: Moderate

AACSB: Application of knowledge

43) The stock market is an example of a(n):

- A) English auction.
- B) Group buying auction.
- C) Dutch auction.
- D) double auction.

Answer: D

Difficulty: Moderate

AACSB: Application of knowledge

44) Which of the following types of auctions tends to be best for sellers?

- A) English auctions
- B) Name Your Own Price auctions
- C) Dutch Internet auctions
- D) Group buying auctions

Answer: A

Difficulty: Moderate

AACSB: Application of knowledge

45) Which of the following is the original social photo-sharing site?

- A) Vevo
- B) Flickr
- C) Instagram
- D) Tumblr

Answer: B

Difficulty: Moderate

AACSB: Application of knowledge

46) All of the following types of auctions have a seller bias *except*:

- A) double auction.
- B) Dutch-traditional.
- C) Yankee auction-Internet.
- D) Dutch Internet.

Answer: A

Difficulty: Moderate

AACSB: Application of knowledge

47) All of the following types of auctions have a buyer bias *except*:

- A) English auction.
- B) sealed bid market.
- C) name your own price auction.
- D) group buying.

Answer: A

Difficulty: Moderate

AACSB: Application of knowledge

48) All of the following types of auctions involve single units *except*:

- A) English auction.
- B) Dutch Internet.
- C) Japanese auction.
- D) Vickrey auction.

Answer: B

Difficulty: Moderate

AACSB: Application of knowledge

49) Which of the following types of auctions offers a neutral marketplace, without buyer or seller bias?

- A) sealed bid market
- B) English auction
- C) double auction
- D) name your own price auction

Answer: C

Difficulty: Moderate

AACSB: Application of knowledge

50) A(n) \_\_\_\_\_, in which the highest bidder wins, is the most common form of auction.

- A) Dutch Internet auction
- B) Japanese auction
- C) English auction
- D) reverse auction

Answer: C

Difficulty: Moderate

AACSB: Application of knowledge

51) Priceline.com is an example of a(n):

- A) English auction.
- B) Dutch auction.
- C) group buying auction.
- D) name your own price auction.

Answer: D

Difficulty: Moderate

AACSB: Application of knowledge

52) Elance.com is an example of a(n):

- A) demand aggregator.
- B) auction aggregator.
- C) auction solution provider.
- D) professional service auction.

Answer: D

Difficulty: Moderate

AACSB: Application of knowledge

53) Which of the following is *not* one of the top factors a business should consider when planning an Internet auction?

- A) type of product
- B) type of auction
- C) location of auction
- D) bid increments

Answer: C

Difficulty: Moderate

AACSB: Application of knowledge

54) The profit a seller makes at auction is a function of all of the following *except*:

- A) arrival rate.
- B) auction length.
- C) the number of units for auction.
- D) bid increments.

Answer: D

Difficulty: Moderate

AACSB: Application of knowledge

55) \_\_\_\_\_ is the tendency to gravitate toward, and bid for, auction listings with one or more existing bids.

- A) Group buying
- B) Winner's regret
- C) Herd behavior
- D) Bid rigging

Answer: C

Difficulty: Moderate

AACSB: Application of knowledge

56) Which of the following involves a concern that one will never know how much the ultimate winner might have paid, or the true value to the final winner?

- A) herd behavior
- B) winner's regret
- C) seller's lament
- D) loser's lament

Answer: C

Difficulty: Moderate

AACSB: Application of knowledge

57) All of the following are situations in which markets fail to produce socially desirable outcomes *except*:

- A) information asymmetry.
- B) monopoly power.
- C) externalities.
- D) network effects.

Answer: D

Difficulty: Moderate

AACSB: Application of knowledge

58) Which of the following involves e-mailing another seller's bidders and offering the same product for less?

- A) transaction interception
- B) bid siphoning
- C) shill bidding
- D) persistent bidding

Answer: B

Difficulty: Moderate

AACSB: Application of knowledge

59) Threatening negative feedback in return for a benefit is an example of:

- A) feedback extortion.
- B) offensive shill feedback.
- C) defensive shill feedback.
- D) sending spam.

Answer: A

Difficulty: Moderate

AACSB: Application of knowledge

60) Which of the following is *not* one of the three defining characteristics of a portal?

- A) commerce
- B) content
- C) auctions
- D) navigation of the Web

Answer: C

Difficulty: Moderate

AACSB: Application of knowledge

- 61) Which of the following statements illustrates the network effects that portals are subject to?
- A) Specialized vertical market portals attract only 2-10% of the audience, while a few large megaportals garner most of the market.
  - B) The value of the portal to advertisers and consumers increases geometrically as reach increases.
  - C) The greater the amount of content provided by a portal, the greater its value to the community.
  - D) The greater number of portals available, the greater the potential audience for each.

Answer: B

Difficulty: Moderate

AACSB: Application of knowledge

- 62) The world's leading portal/search engine site, in terms of unique visitors, is:

- A) Yahoo.
- B) MSN/Bing.
- C) AOL.
- D) Google.

Answer: D

Difficulty: Moderate

AACSB: Application of knowledge

- 63) MSN is an example of a:

- A) general purpose portal.
- B) vertical market portal based on affinity group.
- C) vertical market portal based on focused content.
- D) focused content search engine.

Answer: A

Difficulty: Moderate

AACSB: Application of knowledge

- 64) Facebook was the leader in U.S. ad spending revenues on social networks in 2013. What company received the second most amount of ad spending revenue?

- A) MySpace
- B) LinkedIn
- C) Pinterest
- D) Twitter

Answer: D

Difficulty: Moderate

AACSB: Application of knowledge

- 65) Which of the following is *not* one of the typical portal revenue sources?

- A) commissions on sales
- B) subscription fees
- C) tenancy deals
- D) referral fees

Answer: D

Difficulty: Moderate

AACSB: Application of knowledge

66) Howard Rheingold, one of The Well's early participants, coined the term \_\_\_\_\_ to refer to "cultural aggregations that emerge when enough people bump into each other often enough in cyberspace."

Answer: virtual communities

Difficulty: Moderate

AACSB: Application of knowledge

67) A(n) \_\_\_\_\_ offer members focused discussion groups, help, information, and knowledge related to an area of shared practice.

Answer: practice network

Difficulty: Moderate

AACSB: Application of knowledge

68) \_\_\_\_\_ pricing first appeared in the nineteenth century with the development of mass national markets and retail stores that could sell to a national audience.

Answer: Fixed

Difficulty: Moderate

AACSB: Application of knowledge

69) \_\_\_\_\_ are markets in which prices are variable and based on the competition among participants who are buying or selling the products.

Answer: Auctions

Difficulty: Easy

AACSB: Application of knowledge

70) The term \_\_\_\_\_ refers to the advantages conferred the larger an auction site becomes in terms of visitors and products for sale.

Answer: network effects

Difficulty: Moderate

AACSB: Application of knowledge

71) A \_\_\_\_\_ permits the consumer to monitor specific auctions of interest, requiring the consumer to pay close attention only in the last few minutes of bidding.

Answer: watch list

Difficulty: Moderate

AACSB: Application of knowledge

72) The time spent watching and reviewing auction bids is a part of \_\_\_\_\_ costs.

Answer: monitoring

Difficulty: Moderate

AACSB: Application of knowledge

73) \_\_\_\_\_ is defined in the text as the average of prices for that product or service in a variety of dynamic and fixed-price markets around the world.

Answer: Fair market value

Difficulty: Moderate

AACSB: Application of knowledge

74) If an auction uses a(n) \_\_\_\_\_, there will be multiple winners and they all will pay the same price.

Answer: uniform pricing rule

Difficulty: Moderate

AACSB: Application of knowledge

75) A(n) \_\_\_\_\_ facilitates group buying of products at dynamically adjusted discount prices based on high-volume purchases.

Answer: demand aggregator

Difficulty: Moderate

AACSB: Application of knowledge

76) E-mailing buyers to warn them away from a seller is a type of auction fraud known as \_\_\_\_\_.

Answer: transaction interference

Difficulty: Moderate

AACSB: Application of knowledge

77) \_\_\_\_\_ refers to the feeling that one has paid too high a price for an item won at auction.

Answer: Winner's regret

Difficulty: Easy

AACSB: Application of knowledge

78) \_\_\_\_\_ refers to the use of secondary user IDs or bidders who have no actual intention to buy to artificially raise the price of an item.

Answer: Shill bidding

Difficulty: Difficult

AACSB: Application of knowledge

79) \_\_\_\_\_ help employees navigate to the firm's human resource and corporate content such as corporate news and announcements.

Answer: Enterprise portals

Difficulty: Easy

AACSB: Application of knowledge

80) \_\_\_\_\_ portals, such as Yahoo, attempt to attract a very large audience and then retain the audience on-site by providing in-depth vertical content channels.

Answer: General purpose

Difficulty: Moderate

AACSB: Application of knowledge

81) Define the term *auction* and explain the four major Internet auction types discussed in the chapter and how they function.

Answer: Auctions are dynamic pricing markets in which the prices vary depending on the competition among the participants who are buying or selling products or services. The four major types of Internet auctions are English, Dutch Internet, Name Your Own Price, and group buying.

In an English auction, a single item is up for sale from a single seller. Multiple buyers bid against one another within a specific time frame. The highest bidder wins the object, as long as the high bid has exceeded the reserve bid set by the seller, below which he or she refuses to sell.

In Dutch Internet auctions, sellers with many identical items to sell list a minimum price or starting bid and buyers indicate both a bid price and a quantity desired. All winning bidders pay the lowest winning bid that clears the available quantity. Those with the highest bid are assured of receiving the quantity they desire, but only pay the amount of the lowest successful bid. This is referred to as a uniform pricing rule.

In Name Your Own Price or reverse auctions, buyers specify the price they are willing to pay for an item and multiple sellers bid for their business. This is one example of discriminatory pricing in which winners may pay different amounts for the same product or service depending upon how much they have bid.

In group buying or demand aggregation auctions, the more users who sign on to buy an item, the lower the price for the item falls. There are two principles at work. First, sellers are more likely to offer discounts to buyers purchasing in volume. Second, buyers increase their purchases as prices fall. Prices are expected to dynamically adjust to the volume of the order and the motivations of the sellers.

Difficulty: Easy

AACSB: Analytical thinking; Written and oral communication

82) What are the benefits of Internet auctions to sellers, buyers, and market makers in an auction?

Answer: The general benefits of auctions to sellers and buyers are liquidity, price discovery, price transparency, market efficiency, lowered transaction costs, consumer aggregation, network effects, and market maker benefits.

Sellers and buyers are connected in a global marketplace where even difficult to price items can be competitively priced based on supply and demand. Everyone in the world can see the asking and bidding prices for items, although prices can vary from auction site to auction site. Buyers are offered access to a selection of goods that would be impossible to access physically. Buyers and sellers benefit by the reduced costs of selling and purchasing goods compared to the physical marketplace. A large number of consumers who are motivated to buy are amassed in one marketplace, which is a great convenience to the seller. Network effects are achieved because the larger an auction site becomes in both the numbers of users and products, the greater all of the above benefits become and therefore the more valuable a marketplace it becomes.

Auction sites carry benefits for market makers as they have no inventory carrying costs or shipping costs. In addition, market makers can earn revenues from the various stages in the auction cycle: transaction fees, advertising and special placement fees, listing fees, financial services fees from payment systems.

Difficulty: Moderate

AACSB: Analytical thinking; Written and oral communication

83) What are the costs and risks for buyers at an auction and how have auction sites sought to reduce these risks?

Answer: The costs for buyers when they participate in an auction are delayed consumption, monitoring costs, equipment costs, trust risks, and fulfillment costs. Delayed consumption occurs because auctions can go on for days and the product must then be shipped to the buyer. Buyers will typically want to pay less for an item for which they cannot receive immediate gratification. Buyers must also spend time monitoring the bidding, returning to the site frequently to see if they need to raise their bid. They must also purchase, or have already purchased, computer systems and Internet service, and learned how to operate these systems. Since buyers must pay for packing, shipping, and insurance, they will factor these fulfillment costs into their bid price.

Consumers also face an increased risk of experiencing a loss because online auctions are a major source of Internet fraud. Auction sites have sought to reduce these trust risks through various methods including rating systems, watch lists, and proxy bidding. Rating systems are designed so that previous customers can evaluate sellers based upon their experience with them. These evaluations are posted on the site for other buyers to see. Watch lists allow buyers to monitor specific auctions as they proceed over a number of days and only pay close attention in the last few minutes of bidding. In proxy bidding systems, buyers can enter the maximum price they are willing to pay and the auction software will automatically place incremental bids as their original bid is surpassed. In addition, one partial solution to high monitoring costs is, ironically, fixed pricing. At eBay, consumers can reduce the cost of monitoring and waiting for auctions to end by simply clicking on the "Buy It Now!" button and paying a premium price.

Difficulty: Moderate

AACSB: Analytical thinking; Written and oral communication

84) Discuss the impact social networks have had on how businesses operate, communicate, and serve their customers.

Answer: Social networks have had a profound impact on how businesses operate, communicate, and serve their customers. The most visible business firm use of social networks is as a marketing and branding tool. More than 90% of the Fortune 500 have established Facebook pages similar to Web sites, where "fans" (actual or potential customers and their friends) can follow the business and its products and share opinions with the company and other fans. More than 80% of corporations have Twitter feeds for this purpose as well. A less visible marketing use of networks is its use as a powerful listening tool that has strengthened the role of customers and customer feedback systems inside a business. Dr. Pepper, for instance, has built up a fan base of over 15 million people who "Like" it on Facebook. Twitter has attracted thousands of firms and over 200 million active users worldwide, 20% of whom follow tweets from brand-name firms. Social networks are where corporate brands and reputations are formed, and firms today take very seriously the topic of "online reputation," as evidenced by social network posts, commentary, chat sessions, and "Likes." In this sense, social networks sites have become an extension of corporate customer relationship management systems and extend existing market research programs. Beyond branding, social network sites are being used increasingly as advertising platforms to contact a somewhat younger audience than Web sites and e-mail, and as customers increasingly shift their eyeballs to social networks. Rosetta Stone, for instance, uses its Facebook page to display videos of its learning technology, encourage discussions and reviews, and post changes in its learning tools.

Difficulty: Difficult

AACSB: Analytical thinking; Written and oral communication

85) Describe the major types of Internet portals and explain the portal business model.

Answer: Web portals are the gateways to the billions of Web pages available on the Internet. Originally their primary purpose was to help users find information on the Web, but they evolved into destination sites that provided a myriad of content from news to entertainment. Today portals serve three main purposes: navigation of the Web, content, and commerce. Portals also serve important functions within a business or organization. Most corporations, universities, churches, and other formal organizations have enterprise portals that help employees navigate to the enterprise's human resource and corporate content such as corporate news and announcements.

There are two primary types of portals: general purpose portals and vertical market portals. General purpose portals attempt to attract a very large general audience and then retain the audience on-site by providing in-depth vertical content channels. Vertical market portals (sometimes also referred to as destination sites or vortals) attempt to attract highly focused, loyal audiences with a deep interest either in community or specialized content—from sports to the weather. In addition to their focused content, vertical market portals have recently begun adding many of the features found in general purpose portals.

Portals receive income from a number of different sources. The revenue base of portals is changing and dynamic, with some of the largest sources of revenue declining. Typical revenue sources include general advertising, tenancy deals, commissions on sales, subscription fees, and fees from applications and games. The business strategies of both general and vertical portals have changed greatly because of the rapid growth in search engine advertising and intelligent ad placement networks such as Google's AdSense. General portal sites such as AOL and Yahoo did not have well-developed search engines, and hence have not grown as fast as Google, which has a powerful search engine. Portal sites have invested billions of dollars to catch up with Google. On the other hand, general portals have content, which Google did not originally have, although it has since added content by purchasing YouTube and adding Google sites devoted to news, financial information, images, and maps. General portals are attempting to provide more premium content focused on subcommunities of their portal audience.

Advertisers on portals are especially interested in focused, revenue-producing premium content available on Web portals because it attracts a more committed audience. For instance, financial service firms pay premium advertising rates to advertise on portal finance service areas such as Yahoo's Finance pages. There is a direct relationship between the revenue derived from a customer and the focus of the customer segment. The survival strategy for general purpose portals in the future is therefore to develop deep, rich, vertical content in order to reach customers at the site. The strategy for much smaller vertical market portals is to put together a collection of vertical portals to form a vertical portal network, a collection of deep, rich content sites. The strategy for search engine sites like Google is to obtain more content to attract users for a long time and expose them to more ad pages (or screens).

Difficulty: Moderate

AACSB: Analytical thinking; Written and oral communication

86) What are the different types of social networks and what is the business model of each one?  
Answer: The five generic types of social networks and online communities are general, practice, interest, affinity, and sponsored. Each type of community can have a commercial intent or commercial consequence.

General communities offer members opportunities to interact with a general audience organized into general topics. Within the topics, members can find hundreds of specific discussion groups attended by thousands of like-minded members who share an interest in that topic. The purpose of the general community is to attract enough members to populate a wide range of topics and discussion groups. The business model of general communities is typically advertising supported by selling ad space on pages and videos.

Practice networks offer members focused discussion groups, help, information, and knowledge relating to an area of shared practice. Some online communities involve artists, educators, art dealers, photographers, and nurses. Practice networks can be either profit-based or nonprofit and support themselves by advertising or user donations.

Interest-based social networks offer members focused discussion groups based on a shared interest in some specific subject, such as business careers, boats, horses, health, skiing, and thousands of other topics. Because the audience for interest communities is necessarily much smaller and more targeted, these communities have usually relied on advertising and tenancy/sponsorship deals. These sites are usually advertising supported.

Affinity communities offer members focused discussions and interaction with other people who share the same affinity (and self-identify themselves on the basis of religion, ethnicity, gender, sexual orientation, political beliefs, geographical location). These sites are supported by advertising along with revenues from sales of products.

Sponsored communities are online communities created by government, nonprofit, or for-profit organizations for the purpose of pursuing organizational goals. These goals can be diverse, from increasing the information available to citizens, at a local county government site such as Westchestergov.com, to a product site such as Tide.com, which is sponsored by an offline branded product company.

Difficulty: Moderate

AACSB: Analytical thinking; Written and oral communication

1) B2B e-commerce systems originated with the Internet.

Answer: FALSE

Difficulty: Moderate

AACSB: Application of knowledge

2) Virtually all firms, both large and small, now use Electronic Data Interchange (EDI) systems.

Answer: FALSE

Difficulty: Moderate

AACSB: Application of knowledge

3) Private industrial networks are the most prevalent form of Internet-based B2B commerce.

Answer: TRUE

Difficulty: Moderate

AACSB: Application of knowledge

4) Regional supply chains provide lower short-term costs, but higher, longer-term risk protection.

Answer: FALSE

Difficulty: Moderate

AACSB: Application of knowledge

5) Collaborative commerce is primarily concerned with the development of a rich communications environment.

Answer: TRUE

Difficulty: Moderate

AACSB: Application of knowledge

6) Walmart has one of the most efficient B2B supply chains in the world.

Answer: TRUE

Difficulty: Moderate

AACSB: Application of knowledge

7) MRO goods are also known as indirect goods.

Answer: TRUE

Difficulty: Moderate

AACSB: Application of knowledge

8) E-distributors operate in horizontal markets.

Answer: TRUE

Difficulty: Moderate

AACSB: Application of knowledge

9) Lean production is an extension of just-in-time production methods.

Answer: TRUE

Difficulty: Moderate

AACSB: Application of knowledge

10) Independent exchanges are the fastest growing form of online B2B e-commerce.

Answer: FALSE

Difficulty: Moderate

AACSB: Application of knowledge

11) Industry consortia are more focused on optimizing short-term supply relationships than independent exchanges, which tend to focus more on long-term transactions.

Answer: FALSE

Difficulty: Moderate

AACSB: Application of knowledge

12) Private industrial networks typically involve manufacturing and related support industries.

Answer: TRUE

Difficulty: Easy

AACSB: Application of knowledge

13) An exchange is an independently owned online marketplace that connects many suppliers and buyers.

Answer: TRUE

Difficulty: Difficult

AACSB: Application of knowledge

14) Industry consortia are usually owned collectively by the major firms participating in the consortia, while private industrial networks usually are created by a single sponsoring company.

Answer: TRUE

Difficulty: Moderate

AACSB: Application of knowledge

15) Demand chain visibility is one goal of collaborative commerce.

Answer: TRUE

Difficulty: Easy

AACSB: Application of knowledge

16) VWGroupSupply.com is an example of an:

A) e-distributor.

B) e-procurement Net marketplace.

C) exchange.

D) industry consortium.

Answer: B

Difficulty: Moderate

AACSB: Application of knowledge

17) Analysts predict that B2B e-commerce in the United States will grow by 2017 to approximately:

- A) \$6.6 billion.
- B) \$66 billion.
- C) \$660 billion.
- D) \$6.6 trillion.

Answer: D

Difficulty: Moderate

AACSB: Application of knowledge

18) Which of the following is *not* a current major trend in B2B e-commerce?

- A) Large firms move toward consolidating regional B2B systems into global systems.
- B) Over 60% of B2B firms use Twitter and other social networks to enable collaboration.
- C) Firms place a growing emphasis on rapid-response and optimal supply chain rather than lowest-cost supply chains.
- D) B2B systems move to data storage on cloud providers and away from individual corporate data centers.

Answer: A

Difficulty: Moderate

AACSB: Application of knowledge

19) Walmart's global supply chain has been criticized for all of the following *except*:

- A) exploiting labor in underdeveloped countries.
- B) bribing officials.
- C) wasting energy.
- D) failing to be efficient.

Answer: D

Difficulty: Moderate

AACSB: Application of knowledge

20) In 2013, the total amount of B2B e-commerce in the United States was approximately:

- A) \$4.7 billion.
- B) \$47 billion.
- C) \$470 billion.
- D) \$4.7 trillion.

Answer: D

Difficulty: Moderate

AACSB: Application of knowledge

21) Which of the following was the first step in the development of B2B commerce?

- A) Electronic Data Interchange (EDI)
- B) automated order entry systems
- C) digital storefronts
- D) private industrial networks

Answer: B

Difficulty: Moderate

AACSB: Application of knowledge

22) Which of the following terms refers to the total flow of value among firms?

- A) total interfirm trade
- B) B2B commerce
- C) multi-tier exchange
- D) liquidity

Answer: A

Difficulty: Moderate

AACSB: Application of knowledge

23) Which of the following statements about automated order entry systems is *not* true?

- A) They are typically owned by the suppliers.
- B) They no longer play an important role in B2B commerce.
- C) They show goods only from a single seller.
- D) They reduce the costs of inventory replenishment.

Answer: B

Difficulty: Moderate

AACSB: Application of knowledge

24) EDI systems:

- A) generally serve horizontal markets.
- B) are seller-side solutions.
- C) are based on a communications standard for sharing business documents.
- D) no longer play an important role in B2B commerce.

Answer: C

Difficulty: Moderate

AACSB: Application of knowledge

25) Which of the following statements about B2B electronic storefronts is *not* true?

- A) They are a predecessor of automated order entry systems.
- B) They tend to serve horizontal markets.
- C) They are seller-side solutions.
- D) They are usually considered a type of Net marketplace.

Answer: A

Difficulty: Moderate

AACSB: Application of knowledge

26) Which of the following is another name for a private industrial network?

- A) Net marketplace
- B) PTX
- C) EDI network
- D) hub-and-spoke system

Answer: B

Difficulty: Moderate

AACSB: Application of knowledge

27) All of the following are weaknesses of EDI *except*:

- A) EDI is not well suited for electronic marketplaces.
- B) EDI lacks universal standards.
- C) EDI does not provide a real-time communication environment.
- D) EDI does not scale easily.

Answer: B

Difficulty: Moderate

AACSB: Application of knowledge

28) Which of the following is the fastest growing form of B2B e-commerce?

- A) e-distributors
- B) exchanges
- C) private industrial networks
- D) industry consortiums

Answer: C

Difficulty: Moderate

AACSB: Application of knowledge

29) All of the following are potential benefits of B2B e-commerce *except*:

- A) lower administrative costs.
- B) lower search costs.
- C) lower price transparency.
- D) lower transaction costs.

Answer: C

Difficulty: Moderate

AACSB: Application of knowledge

30) What is the first step in the procurement process?

- A) negotiate price
- B) qualify the seller and its products
- C) issue a purchase order
- D) search for suppliers

Answer: D

Difficulty: Moderate

AACSB: Application of knowledge

31) The last step in the procurement process is:

- A) sending a remittance payment.
- B) sending the invoice.
- C) shipping the goods.
- D) delivering the goods.

Answer: A

Difficulty: Moderate

AACSB: Application of knowledge

32) Office supplies are an example of:

- A) direct goods.
- B) indirect goods.
- C) MRO goods.
- D) distributed goods.

Answer: B

Difficulty: Moderate

AACSB: Application of knowledge

33) The majority of interfirm trade involves:

- A) spot purchasing of direct goods.
- B) contract purchasing of indirect goods.
- C) contract purchasing of direct goods.
- D) spot purchasing of indirect goods.

Answer: C

Difficulty: Moderate

AACSB: Application of knowledge

34) Which of the following is a method of inventory cost management that seeks to eliminate excess inventory?

- A) lean production
- B) sustainable production
- C) just-in-time production
- D) supply chain simplification

Answer: C

Difficulty: Moderate

AACSB: Application of knowledge

35) Which of the following is *not* one of the major developments in supply chain management over the past two decades?

- A) supply chain simplification
- B) EDI
- C) accountable supply chains
- D) cloud computing

Answer: D

Difficulty: Moderate

AACSB: Application of knowledge

36) \_\_\_\_\_ is a method for ensuring that suppliers precisely deliver ordered parts at a specific time and to a particular location.

- A) Having an adaptive supply chain
- B) Tight coupling
- C) Supply-chain management
- D) Materials requirement planning

Answer: B

Difficulty: Moderate

AACSB: Application of knowledge

37) B2B commerce includes all of the following business processes *except*:

- A) use of corporate intranets.
- B) inventory management.
- C) product development.
- D) order fulfillment.

Answer: A

Difficulty: Moderate

AACSB: Application of knowledge

38) EDI began as a(n) \_\_\_\_\_ system.

- A) document automation
- B) document elimination
- C) continuous replenishment
- D) MRP

Answer: A

Difficulty: Moderate

AACSB: Application of knowledge

39) All of the following are potential benefits of B2B e-commerce *except*:

- A) increased production flexibility.
- B) increased product cycle time.
- C) increased opportunities to collaborate with suppliers and distributors.
- D) increased visibility and real-time information sharing among all participants in the supply chain network.

Answer: B

Difficulty: Moderate

AACSB: Application of knowledge

40) A(n) \_\_\_\_\_ system continuously links the activities of buying, making, and moving products from suppliers to purchasing firms, as well as integrating order entry systems.

- A) EDI
- B) ERP
- C) CPFR
- D) SCM

Answer: D

Difficulty: Moderate

AACSB: Application of knowledge

41) Which of the following statements about collaborative commerce systems is *not* true?

- A) They involve a move from a transaction focus to a relationship focus.
- B) They may include both customers and suppliers.
- C) They are open, competitive marketplaces.
- D) They typically include a central data repository.

Answer: C

Difficulty: Moderate

AACSB: Application of knowledge

42) Which of the following is *not* a characteristic of the use of social networks in B2B e-commerce?

- A) It is typically unstructured.
- B) It helps develop a more personal relationship between participants in the supply chain.
- C) It enables participants to make decisions based on current conditions.
- D) They are always private.

Answer: D

Difficulty: Difficult

AACSB: Application of knowledge

43) Which of the following primarily serve horizontal markets?

- A) e-distributors and exchanges
- B) e-distributors and e-procurement Net marketplaces
- C) e-procurement Net marketplaces and industry consortia
- D) exchanges and industry consortia

Answer: B

Difficulty: Moderate

AACSB: Application of knowledge

44) Which of the following primarily deal with indirect goods?

- A) e-distributors and industry consortia
- B) e-distributors and e-procurement Net marketplaces
- C) exchanges and industry consortia
- D) exchanges and e-procurement Net marketplaces

Answer: B

Difficulty: Moderate

AACSB: Application of knowledge

45) Which of the following primarily deal with direct goods?

- A) e-distributors and independent exchanges
- B) exchanges and e-procurement Net marketplaces
- C) exchanges and industry consortia
- D) e-procurement Net marketplaces and industry consortia

Answer: C

Difficulty: Moderate

AACSB: Application of knowledge

46) All of the following have led to the development of outsourcing of manufacturing around the world *except*:

- A) technology.
- B) globalization of trade.
- C) environmental concerns.
- D) high levels of wage disparity between the developed and undeveloped worlds.

Answer: C

Difficulty: Moderate

AACSB: Application of knowledge

47) Which of the following primarily involve long-term sourcing?

- A) e-distributors and exchanges
- B) e-distributors and industry consortia
- C) e-procurement Net marketplaces and exchanges
- D) e-procurement Net marketplaces and industry consortia

Answer: D

Difficulty: Moderate

AACSB: Application of knowledge

48) An \_\_\_\_\_ provides electronic catalogs that represent the products of thousands of direct manufacturers.

- A) e-distributor
- B) e-procurement company
- C) exchange
- D) industry consortium

Answer: A

Difficulty: Moderate

AACSB: Application of knowledge

49) An \_\_\_\_\_ primarily serves businesses that buy indirect goods on a spot purchasing basis.

- A) e-distributor
- B) e-procurement company
- C) exchange
- D) industry consortium

Answer: A

Difficulty: Moderate

AACSB: Application of knowledge

50) Which of the following statements about e-distributors is *not* true?

- A) E-distributors make money by charging a mark-up on products they distribute.
- B) E-distributors usually operate "private" markets.
- C) E-distributors operate in horizontal markets.
- D) E-distributor prices are usually fixed.

Answer: B

Difficulty: Difficult

AACSB: Application of knowledge

51) An \_\_\_\_\_ primarily serves businesses that primarily buy indirect goods on a contract purchasing basis.

- A) e-distributor
- B) e-procurement Net marketplace
- C) exchange
- D) industry consortium

Answer: B

Difficulty: Moderate

AACSB: Application of knowledge

52) Which of the following is an example of an e-procurement Net marketplace?

- A) Exostar
- B) Ariba
- C) Grainger
- D) none of the above

Answer: B

Difficulty: Moderate

AACSB: Application of knowledge

53) All of the following are examples of direct goods in the auto industry *except*:

- A) sheet steel.
- B) shatter-resistant glass.
- C) rubber molding.
- D) desktop computers.

Answer: D

Difficulty: Moderate

AACSB: Application of knowledge

54) An example of an indirect good in the fast-food industry is:

- A) food-grade paper.
- B) fax paper.
- C) beef.
- D) sugar.

Answer: B

Difficulty: Moderate

AACSB: Application of knowledge

55) An \_\_\_\_\_ is an independently owned, online marketplace that connects hundreds to potentially thousands of suppliers and buyers in a dynamic, real-time environment.

- A) exchange
- B) e-distributor
- C) e-procurement company
- D) industry consortium

Answer: A

Difficulty: Moderate

AACSB: Application of knowledge

56) An \_\_\_\_\_ primarily serves businesses that primarily buy direct goods on a spot purchasing basis.

- A) e-distributor
- B) e-procurement company
- C) exchange
- D) industry consortium

Answer: C

Difficulty: Moderate

AACSB: Application of knowledge

57) The liquidity of a market is measured by all of the following *except*:

- A) price transparency
- B) number of buyers and sellers in market
- C) volume of transactions
- D) size of transactions

Answer: A

Difficulty: Moderate

AACSB: Application of knowledge

58) Which of the following is *not* an important theme of B2B e-commerce in 2013-2014?

- A) concern about supply chain risk
- B) concern about supply chain volatility
- C) concern about the accountability of supply chains
- D) concern about the privacy of supply chains

Answer: D

Difficulty: Moderate

AACSB: Application of knowledge

59) An \_\_\_\_\_ serves businesses that primarily buy direct goods on a contract purchasing basis.

- A) e-distributor
- B) e-procurement company
- C) exchange
- D) industry consortium

Answer: D

Difficulty: Moderate

AACSB: Application of knowledge

60) Which of the following statements is *not* true?

- A) The Volkswagen Group manages almost all of its procurement needs via the Internet.
- B) VWGroupSupply.com is an industry consortium.
- C) VWGroupSupply can be accessed by suppliers via standard Web browser software.
- D) The Volkswagen Group developed VWGroupSupply using technology from a number of vendors.

Answer: B

Difficulty: Moderate

AACSB: Application of knowledge

61) \_\_\_\_\_ is another name for transorganizational business processes.

- A) Supply chain management
- B) Collaborative commerce
- C) B2B e-commerce
- D) Value chain management

Answer: B

Difficulty: Moderate

AACSB: Application of knowledge

62) Private industrial networks are direct descendants of:

- A) e-procurement Net marketplaces.
- B) existing EDI networks.
- C) independent exchanges.
- D) industry consortia.

Answer: B

Difficulty: Moderate

AACSB: Application of knowledge

63) EDI document structures are defined by:

- A) a single international standards body.
- B) by individual suppliers and buyers.
- C) industry committees.
- D) each purchaser.

Answer: C

Difficulty: Moderate

AACSB: Application of knowledge

64) All of the following are forms of collaboration among businesses *except*:

- A) RFQs.
- B) CPFR.
- C) demand chain visibility.
- D) marketing coordination and product design.

Answer: A

Difficulty: Moderate

AACSB: Application of knowledge

65) Which of the following is *not* a typical barrier to the implementation of a private industrial network?

- A) It requires participating firms to share sensitive data.
- B) It requires the large network owners to give up some of its independence.
- C) It requires a significant investment of time and money.
- D) It requires a change of mind-set and behavior of employees.

Answer: B

Difficulty: Moderate

AACSB: Application of knowledge

66) \_\_\_\_\_ technology is replacing bar-code scanner technology to track inventory in supply chains.

Answer: RFID; Radio frequency identification

Difficulty: Moderate

AACSB: Application of knowledge

67) A(n) \_\_\_\_\_ market is one that provides expertise and products for a specific industry, such as automobiles.

Answer: vertical

Difficulty: Easy

AACSB: Application of knowledge

68) A(n) \_\_\_\_\_ supply chain is one in which the labor conditions in low-wage, underdeveloped producer countries are visible and morally acceptable to ultimate consumers in more developed industrial societies.

Answer: accountable

Difficulty: Easy

AACSB: Application of knowledge

69) The essential characteristic of \_\_\_\_\_ is that they bring hundreds to thousands of suppliers into a single Internet-based environment to conduct trade.

Answer: Net marketplaces

Difficulty: Moderate

AACSB: Application of knowledge

70) \_\_\_\_\_ is a set of production methods that focuses on the elimination of waste throughout the customer value chain.

Answer: Lean production

Difficulty: Difficult

AACSB: Application of knowledge

71) \_\_\_\_\_ purchasing involves the purchase of goods based on immediate needs in larger marketplaces that involve many suppliers.

Answer: Spot

Difficulty: Moderate

AACSB: Application of knowledge

72) \_\_\_\_\_ purchasing involves long-term written agreements to purchase specified products, with agreed-upon terms and quality, for an extended period of time.

Answer: Contract

Difficulty: Moderate

AACSB: Application of knowledge

73) Exostar is an example of a (an) \_\_\_\_\_.

Answer: industry consortium

Difficulty: Moderate

AACSB: Application of knowledge

74) Inventory Locator Service is an example of a(n) \_\_\_\_\_.

Answer: exchange

Difficulty: Moderate

AACSB: Application of knowledge

75) \_\_\_\_\_ is defined as the use of digital technologies to permit organizations to work together to design, develop, build, and manage products through their life cycles.

Answer: Collaborative commerce

Difficulty: Moderate

AACSB: Application of knowledge

76) The four main types of Net marketplaces are e-distributors, e-procurement networks, exchanges, and \_\_\_\_\_.

Answer: industry consortia

Difficulty: Moderate

AACSB: Application of knowledge

77) \_\_\_\_\_ services include automation of a firm's entire procurement process on the buyer side and automation of the selling business processes on the seller side.

Answer: Value chain management, VCM

Difficulty: Moderate

AACSB: Application of knowledge

78) A(n) \_\_\_\_\_ supply chain includes a company's secondary and tertiary suppliers.

Answer: multi-tier

Difficulty: Moderate

AACSB: Application of knowledge

79) \_\_\_\_\_ can be viewed as "extended enterprises" in the sense that they often begin as ERP systems in a single firm and are then expanded to include the firm's major suppliers.

Answer: Private industrial networks

Difficulty: Moderate

AACSB: Application of knowledge

80) \_\_\_\_\_ is a call for business to take social and ecological interests, and not just corporate profits, into account in all their decision-making throughout the firm.

Answer: Sustainable business

Difficulty: Moderate

AACSB: Application of knowledge

81) Define and discuss the terms *total interfirm trade*, *B2B commerce*, and *B2B e-commerce* in the context of the history and significance of B2B e-commerce.

Answer: Before the Internet, business-to-business transactions were referred to as the procurement process. Today, the procurement process can be thought of as total interfirm trade, which is the total flow of value among firms. B2B commerce describes all types of interfirm trade. B2B e-commerce specifically describes that portion of B2B commerce that uses the Internet to assist firms in buying and selling a variety of goods to each other. The process of conducting trade among businesses consumes many business resources including the time spent by employees processing orders, making and approving purchasing decisions, searching for products, and arranging for their purchase, shipment, receipt, and payment. Across the economy this amounts to trillions of dollars spent annually on procurement processes. If a significant portion of this interfirm trade could be automated and parts of the procurement process assisted by the Internet, millions or even trillions of dollars could be freed up for other uses resulting in increased productivity and increased national economic wealth.

Difficulty: Moderate

AACSB: Analytical thinking; Written and oral communication

82) Identify and describe the major stages in the development of B2B commerce.

Answer: B2B commerce has evolved over a 35-year period through several technology-driven stages. The major stages in this evolution were the development of automated order entry systems, electronic data interchange (EDI), digital storefronts, private industrial networks, and Net marketplaces.

Automated order entry systems began in the mid-1970s with the use of telephone modems to send digital orders to health care products companies. Modems were eventually replaced by personal computers using private networks in the late 1980s and by Internet workstations accessing electronic online catalogs in the late 1990s.

By the late 1970s, a new form of computer-to-computer communication called electronic data interchange (EDI) emerged. EDI is a communications standard for sharing business documents such as invoices, purchase orders, shipping bills, product stocking numbers (SKUs), and settlement information among a small number of firms. Virtually all large firms have EDI systems, and most industry groups have industry standards for defining documents in that industry.

B2B electronic storefronts emerged in the mid-1990s along with the commercialization of the Internet. These storefronts are online catalogs of products made available to the public marketplace by a single supplier.

Net marketplaces emerged in the late 1990s as a natural extension and scaling up of the electronic storefronts. These marketplaces bring hundreds to thousands of suppliers—each with electronic catalogs and potentially thousands of purchasing firms—into a single Internet-based environment to conduct trade.

Private industrial networks also emerged in the late 1990s as natural extensions of EDI systems and the existing close relationships that developed between large industrial firms and their suppliers. Private industrial networks (also referred to as *private trading exchanges*, or *PTXs*) are Internet-based communication environments that extend far beyond procurement to encompass truly collaborative commerce. Private industrial networks permit buyer firms and their principal suppliers to share product design and development, marketing, inventory, production scheduling, and unstructured communications. These networks are the most prevalent form of Internet-based B2B commerce, and this will continue into the foreseeable future.

Difficulty: Moderate

AACSB: Analytical thinking; Written and oral communication

83) Define the procurement process. What are the seven basic steps in the procurement process?

Answer: The procurement process refers to the way business firms purchase the goods they need in order to produce the goods they will ultimately sell to consumers. Firms purchase goods from a set of suppliers that in turn purchase their inputs from another set of suppliers. These firms are linked in a series of connected transactions. The supply chain refers to this series of transactions, which links sets of firms that do business with each other. It includes not only the firms themselves but also the relationships between them and the processes that connect them. There are seven steps in the procurement process: searching for suppliers for specific products; qualifying the sellers and the products they sell; negotiating prices; credit terms, escrow requirements, quality, and scheduling delivery; issuing purchase orders; sending invoices; goods are shipped; and the buyer sends a payment. Each step is composed of separate substeps that must be recorded in the information systems of the buyer, seller, and shipper.

Difficulty: Difficult

AACSB: Analytical thinking; Written and oral communication

84) Define and explain supply chain management systems, supply chain simplification, and collaborative commerce, and the relationship between these concepts.

Answer: Supply chain management systems coordinate and link the activities of suppliers, shippers, and order entry systems to automate the order entry process from start to finish including the purchase, production, and moving of a product from a supplier to a purchasing firm.

Supply chain simplification refers to the reduction of the size of a firm's supply chain. Firms today generally prefer to work closely with a strategic group of suppliers in order to reduce both product costs and administrative costs. Long-term contract purchases containing prespecified product quality requirements and prespecified timing goals have been proven to improve end-product quality and ensure uninterrupted production. These strategic partnership programs are essential for just-in-time production models. They often involve joint product development and design, integration of computer systems, and tight coupling of the production processes of two or more companies.

Collaborative commerce is a direct extension of supply chain management systems and supply chain simplification. The goal is for organizations to collaboratively design, develop, build, and manage products throughout their life cycles. The focus has changed from the simplification of transactions to the relationships between the supply chain participants. Collaborative commerce fosters the sharing of sensitive internal information between suppliers and purchasers. A rich communications environment is cultivated so that interfirm sharing of designs, production plans, inventory levels, and delivery schedules can take place. Strategic partners in a supply chain are connected for much broader purposes, including potentially the development of shared products.

Difficulty: Moderate

AACSB: Analytical thinking; Written and oral communication

85) How are social networks being used in B2B e-commerce?

Answer: In B2B e-commerce, social networks are being used to provide personal connections among customers, suppliers, and logistics partners that are needed to keep the supply chain functioning, and to make decisions based on current conditions. Social networking is used for purchasing, scheduling, exception handling, and deciding with their B2B customers and suppliers. In many cases, supply chain social networks are private and owned by the largest firm in the supply chain network. In other cases, firms develop Facebook pages to organize conversations among supply chain network members. While social networks have not yet had a large influence on B2B e-commerce, public social network sites like Facebook and Twitter are also good listening posts for businesses involved in B2B trade.

Difficulty: Difficult

AACSB: Analytical thinking; Written and oral communication

86) What are private industrial networks? In what ways can they support collaborative commerce?

Answer: Private industrial networks are Internet-enabled networks developed for the coordination of transorganizational business processes. These networks can be industry-wide, but often begin and sometimes focus on the voluntary coordination of a group of supplying firms centered about a single, very large manufacturing firm. Private industrial networks can be viewed as "extended enterprises" in the sense that they often begin as ERP systems in a single firm and are then expanded to include the firm's major suppliers.

The central focus of private industrial networks is to provide an industry-wide global solution to achieve the highest levels of efficiency. Private industrial networks serve different goals from Net marketplaces. Private industrial networks focus on continuous business process coordination between companies and usually focus on a single sponsoring company that "owns" the network, sets the rules, establishes governance, and invites firms to participate at its sole discretion. Private industrial networks focus on strategic, direct goods and services. Private industrial networks can do much more than just serve a supply chain and efficient customer response system. They can also include other activities of a single large manufacturing firm, including design of products and engineering diagrams, as well as marketing plans and demand forecasting.

Collaboration among businesses can take many forms and involve a wide range of activities—from simple supply chain management to coordinating market feedback to designers at supply firms. One form of collaboration is industry-wide collaborative resource planning, forecasting, and replenishment (CPFR), which involves working with network members to forecast demand, develop production plans, and coordinate shipping, warehousing, and stocking activities to ensure retail and wholesale shelf space is replenished with just the right amount of goods. If this goal is achieved, hundreds of millions of dollars of excess inventory and capacity could be wrung out of an industry. This activity alone is likely to produce the largest benefits and justify the cost of developing private industrial networks.

A second area of collaboration is demand chain visibility. In the past, it was impossible to know where excess capacity or supplies existed in the supply and distribution chains. For instance, retailers might have significantly overstocked shelves, but suppliers and manufacturers might be building excess capacity or supplies for even more production. These excess inventories would raise costs for the entire industry and create extraordinary pressures to discount merchandise, reducing profits for everyone.

A third area of collaboration is marketing coordination and product design. Manufacturers that use or produce highly engineered parts use private industrial networks to coordinate both their internal design and marketing activities, as well as related activities of their supply and distribution chain partners. By involving their suppliers in product design and marketing initiatives, manufacturing firms can ensure that the parts produced actually fulfill the claims of marketers. On the reverse flow, feedback from customers can be used by marketers to speak directly to product designers at the firm and its suppliers and "closed-loop marketing" can become a reality.

Difficulty: Moderate

AACSB: Analytical thinking; Written and oral communication

**Chapter 1 Overview of Business Intelligence, Analytics, Data Science, and Artificial Intelligence: Systems for Decision Support**

1) In the opening case KONE has minimized downtime and shortened the repair time.

Answer: TRUE

Diff: 2 Page Ref: 4

2) Intelligent technologies are limited to small-scale projects when they include AI combined with IoT.

Answer: FALSE

Diff: 2 Page Ref: 5

3) Decision making is one of the most important activities in organizations of all kind—probably the most important one.

Answer: TRUE

Diff: 1 Page Ref: 5

4) Managers historically considered decision making purely a science.

Answer: FALSE

Diff: 1 Page Ref: 6

5) With more data and analysis technologies, more alternatives can be evaluated, forecasts can be improved, risk analysis can be performed quickly, and the views of experts can be collected quickly and at a reduced cost.

Answer: TRUE

Diff: 2 Page Ref: 8

6) It is generally best to rely on a trial-and-error approach to management.

Answer: FALSE

Diff: 2 Page Ref: 7

7) A major characteristic of computerized decision support and many BI tools (notably those of business analytics) is the inclusion of at least one model.

Answer: TRUE

Diff: 2 Page Ref: 13

8) The definition of implementation is straightforward because implementation is a simple, direct process with defined boundaries.

Answer: FALSE

Diff: 2 Page Ref: 13

9) Structured problems are encountered in only unique situations.

Answer: FALSE

Diff: 3 Page Ref: 16

10) Unstructured problems can be fully supported by standard computerized quantitative methods.

Answer: FALSE

Diff: 3 Page Ref: 16

11) During the 1990s, the primary focus of information systems support for decision making focused on providing structured, periodic reports that a manager could use for decision making.

Answer: FALSE

Diff: 3 Page Ref: 22

12) Decision support systems couple the intellectual resources of individuals with the capabilities of the computer to improve the quality of decisions. It is a computer-based support system for management decision makers who deal with semistructured problems.

Answer: TRUE

Diff: 2 Page Ref: 22

13) The term *decision support system* is a very specific term that implies the same tool, system, and development approach to most developers.

Answer: FALSE

Diff: 3 Page Ref: 23

14) BI systems rely on a DW as the information source for creating insight and supporting managerial decisions.

Answer: TRUE

Diff: 2 Page Ref: 27

15) One of the four components of BI systems, business performance management, is a collection of source data in the data warehouse.

Answer: FALSE

Diff: 3 Page Ref: 25

16) Analytics is the process of developing actionable decisions or recommendations for actions based on insights generated from historical data.

Answer: TRUE

Diff: 3 Page Ref: 31

17) The use of dashboards and data visualizations is seldom effective in finding efficiencies in organizations, as demonstrated by the Seattle Children's Hospital Case Study.

Answer: FALSE

Diff: 2 Page Ref: 32

18) The use of statistics in baseball by the Oakland Athletics, as described in the *Moneyball* book, is an example of the effectiveness of prescriptive analytics.

Answer: TRUE

Diff: 2 Page Ref: 39

19) Pushing programming out to distributed data is achieved solely by using the Hadoop Distributed File System or HDFS.

Answer: FALSE

Diff: 2 Page Ref: 37

20) Volume, velocity, and variety of data characterize the Big Data paradigm.

Answer: TRUE

Diff: 2 Page Ref: 60

21) What type of external decision-making factor are included by government policy?

- A) political factors
- B) economic factors
- C) sociological and psychological factors
- D) environmental factors

Answer: A

Diff: 3 Page Ref: 6-7

22) What type of external decision-making factor are related to a country's market growth and financial conditions?

- A) political factors
- B) economic factors
- C) sociological and psychological factors
- D) environmental factors

Answer: B

Diff: 3 Page Ref: 6-7

23) What type of external decision-making factor are related to a company's ecosystem?

- A) political factors
- B) economic factors
- C) sociological and psychological factors
- D) environmental factors

Answer: D

Diff: 3 Page Ref: 6-7

24) Organization objectives comes in what stage of the decision-making process?

- A) intelligence
- B) design
- C) choice
- D) implementation

Answer: A

Diff: 2 Page Ref: 10

25) Setting the criteria for a choice comes in what stage of the decision-making process?

- A) intelligence
- B) design
- C) choice
- D) implementation

Answer: B

Diff: 2 Page Ref: 10

26) Sensitivity analysis comes in what stage of the decision-making process?

- A) intelligence
- B) design
- C) choice
- D) implementation

Answer: C

Diff: 2 Page Ref: 10

27) What is the conceptualization of a problem in an attempt to place it in a definable category, possibly leading to a standard solution approach?

- A) problem classification
- B) problem decomposition
- C) problem ownership
- D) problem design

Answer: A

Diff: 2 Page Ref: 12

28) What problem-solving step is based on the understanding that solving the simpler subproblems may help in solving a complex problem?

- A) problem classification
- B) problem decomposition
- C) problem ownership
- D) problem design

Answer: B

Diff: 2 Page Ref: 12

29) In the classic decision support framework, types of decisions are broken apart into all except one of the following categories.

- A) structured
- B) semistructured
- C) unstructured
- D) undefined

Answer: D

Diff: 2 Page Ref: 14-15

30) In the classic decision support framework, types of control are broken apart into all except one of the following categories.

- A) operational control
- B) managerial control
- C) strategic planning
- D) financial control

Answer: D

Diff: 2 Page Ref: 15

31) What type of analytics answers questions like "what happened?"

- A) descriptive
- B) predictive
- C) prescriptive
- D) business intelligence

Answer: A

Diff: 2 Page Ref: 31

32) All of the following have contributed to the growth of decision support systems EXCEPT:

- A) Group communication and collaboration.
- B) Improved data management.
- C) Anywhere, anytime support.
- D) Increasing costs of computer hardware.

Answer: D

Diff: 2 Page Ref: 7-9

33) Business intelligence (BI) can be characterized as a transformation of:

- A) data to information to decisions to actions.
- B) Big Data to data to information to decisions.
- C) actions to decisions to feedback to information.
- D) data to processing to information to actions.

Answer: A

Diff: 3 Page Ref: 25

34) Deep learning would be classified as what stage in the evolution of decision support, business intelligence, analytics & AI?

- A) Executive IT
- B) Business Intelligence
- C) Analytics
- D) Automation

Answer: D

Diff: 3 Page Ref: 22

35) Predictive analytics aims to:

- A) understand what happened in the past
- B) understand why something happened in the past
- C) determine what is likely to happen in the future
- D) describe what is currently occurring

Answer: C

Diff: 3 Page Ref: 33

36) What type of analytics answers questions like "what will happen?"

- A) descriptive
- B) predictive
- C) prescriptive
- D) business intelligence

Answer: B

Diff: 2 Page Ref: 31

37) What type of analytics answers questions like "what should I do?"

- A) descriptive
- B) predictive
- C) prescriptive
- D) business intelligence

Answer: C

Diff: 2 Page Ref: 31

38) When examining the analytic application of market basket analysis, which business question is not being asked?

- A) What products should I combine to create a bundle offer?
- B) Should I combine products based on slow-moving and fast-moving characteristics?
- C) What customer is buying what product at what location?
- D) Should I create a bundle from the same category or a different category line?

Answer: C

Diff: 3 Page Ref: 48

39) Which of the following statements about Big Data is true?

- A) Data chunks are stored in different locations on one computer.
- B) Hadoop is a type of processor used to process Big Data applications.
- C) MapReduce is a storage filing system.
- D) Pure Big Data systems do not involve fault tolerance.

Answer: D

Diff: 3 Page Ref: 37

40) Big Data often involves a form of distributed storage and processing using Hadoop and MapReduce. One reason for this is:

- A) centralized storage creates too many vulnerabilities.
- B) the "Big" in Big Data necessitates over 10,000 processing nodes.
- C) the processing power needed for the centralized model would overload a single computer.
- D) Big Data systems have to match the geographical spread of social media.

Answer: C

Diff: 3 Page Ref: 37

41) To follow these decision-making processes, one must make sure that sufficient \_\_\_\_\_ solutions, including good ones, are being considered.

Answer: alternative

Diff: 2 Page Ref: 6

42) Using \_\_\_\_\_ technology, managers can access information anytime and from any place, analyze and interpret it, and communicate with those using it.

Answer: wireless

Diff: 2 Page Ref: 8

43) \_\_\_\_\_ is a process of choosing among two or more alternative courses of action for the purpose of attaining one or more goals.

Answer: Decision making

Diff: 2 Page Ref: 9

44) The \_\_\_\_\_ phase includes the selection of a proposed solution to the model (not necessarily to the problem it represents).

Answer: choice

Diff: 2 Page Ref: 10

45) One issue with data \_\_\_\_\_ is that it is often subjective.

Answer: estimation

Diff: 2 Page Ref: 11

46) The \_\_\_\_\_ phase involves putting a recommended solution to work.

Answer: implementation

Diff: 2 Page Ref: 13

47) In a(n) \_\_\_\_\_ problem, the procedures for obtaining the best (or at least a good enough) solution are known.

Answer: structured

Diff: 2 Page Ref: 14

48) A(n) \_\_\_\_\_ problem such as new technology development is one that has very few structured elements.

Answer: unstructured

Diff: 2 Page Ref: 14

49) \_\_\_\_\_ is an umbrella term that combines architectures, tools, databases, analytical tools,

applications, and methodologies.

Answer: Business intelligence (BI)

Diff: 2 Page Ref: 25

50) A(n) \_\_\_\_\_ is a major component of a Business Intelligence (BI) system that holds source data.

Answer: data warehouse

Diff: 2 Page Ref: 25

51) A(n) \_\_\_\_\_ is a major component of a Business Intelligence (BI) system that is usually browser based and often presents a portal or dashboard.

Answer: user interface

Diff: 2 Page Ref: 20

52) \_\_\_\_\_ is defined as "interactive computer-based systems, which help decision makers utilize data and models to solve unstructured problems."

Answer: DSS

Diff: 2 Page Ref: 22

53) \_\_\_\_\_ is an umbrella term that combines architectures, tools, databases, analytical tools, applications, and methodologies. It is, like DSS, a content-free expression

Answer: Business intelligence (BI)

Diff: 2 Page Ref: 25

54) The goal of \_\_\_\_\_ analytics is to recognize what is going on as well as the likely forecast and make decisions to achieve the best performance possible.

Answer: prescriptive

Diff: 2 Page Ref: 34

55) \_\_\_\_\_ analytics help managers understand current events in the organization including causes, trends, and patterns.

Answer: Descriptive

Diff: 2 Page Ref: 32

56) \_\_\_\_\_ analytics help managers understand probable future outcomes.

Answer: Predictive

Diff: 2 Page Ref: 33

57) \_\_\_\_\_ refers to data that cannot be stored in a single storage unit and typically refers to data that come in many different forms: structured, unstructured, in a stream, and so forth.

Answer: Big Data

Diff: 2 Page Ref: 37

58) An online retail site usually knows its customer as soon as the customer signs in, and thus they can offer \_\_\_\_\_ pages/offerings to enhance the experience.

Answer: customized

Diff: 2 Page Ref: 47

59) AI is sometimes described as technology that can learn to do things \_\_\_\_\_ over time.

Answer: better

Diff: 2 Page Ref: 52

60) To exhibit real intelligence, machines need to perform the \_\_\_\_\_ range of human cognitive capabilities.

Answer: full

Diff: 2 Page Ref: 55

61) Describe the four step process of management decision-making.

Answer: Managers usually make decisions by following a four-step process:

1. Define the problem (i.e., a decision situation that may deal with some difficulty or with an opportunity).
2. Construct a model that describes the real-world problem.
3. Identify possible solutions to the modeled problem and evaluate the solutions.
4. Compare, choose, and recommend a potential solution to the problem.

Diff: 2 Page Ref: 6

62) Identify one technology for data analysis and decision support and briefly discuss its impact.

Answer: Student selections and discussions will differ.

Diff: 2 Page Ref: 7-8

63) Draw a model of the decision making/modeling process.

Answer: Student drawings may vary, but will closely resemble figure 1.1.

Diff: 2 Page Ref: 10

64) List some of the issues involved in data collection.

Answer: The following are some issues that may arise during data collection and estimation and thus plague decision makers:

- Data are not available. As a result, the model is made with and relies on potentially inaccurate estimates.
- Obtaining data may be expensive.
- Data may not be accurate or precise enough.
- Data estimation is often subjective.
- Data may be insecure.
- Important data that influence the results may be qualitative (soft).
- There may be too many data (i.e., information overload).
- Outcomes (or results) may occur over an extended period. As a result, revenues, expenses, and profits will be recorded at different points in time. To overcome this difficulty, a present-value approach can be used if the results are quantifiable.
- It is assumed that future data will be similar to historical data. If this is not the case, the nature of the change has to be predicted and included in the analysis.

Diff: 2 Page Ref: 11

65) Describe the types of computer support that can be used for structured, semistructured, and unstructured decisions.

Answer:

- **Structured Decisions:** Structured problems, which are encountered repeatedly, have a high level of structure. It is therefore possible to abstract, analyze, and classify them into specific categories and use a scientific approach for automating portions of this type of managerial decision making.
- **Semistructured Decisions:** Semistructured problems may involve a combination of standard solution procedures and human judgment. Management science can provide models for the portion of a decision-making problem that is structured. For the unstructured portion, a DSS can improve the quality of the information on which the decision is based by providing, for example, not only a single solution but also a range of alternative solutions, along with their potential impacts.
- **Unstructured Decisions:** These can be only partially supported by standard computerized quantitative methods. It is usually necessary to develop customized solutions. However, such solutions may benefit from data and information generated from corporate or external data sources.

Diff: 2 Page Ref: 15-16

66) What are the four major components of a BI system?

Answer:

1. A **data warehouse**, with its source data;
2. **Business analytics**, a collection of tools for manipulating, mining, and analyzing the data in the data warehouse;
3. **Business performance management (BPM)** for monitoring and analyzing performance; and
4. A **user interface** (e.g., a dashboard).

Diff: 3 Page Ref: 26

67) List and describe three levels or categories of analytics that are most often viewed as sequential and independent, but also occasionally seen as overlapping.

Answer:

- **Descriptive or reporting analytics** refers to knowing what is happening in the organization and understanding some underlying trends and causes of such occurrences.
- **Predictive analytics** aims to determine what is likely to happen in the future. This analysis is based on statistical techniques as well as other more recently developed techniques that fall under the general category of data mining.
- **Prescriptive analytics** recognizes what is going on as well as the likely forecast and make decisions to achieve the best performance possible.

Diff: 3 Page Ref: 31-35

68) List and briefly discuss the major benefits of AI.

Answer: The major benefits of AI are as follows:

- Significant reduction in the cost of performing work. This reduction continues over time while the cost of doing the same work manually increases with time.
- Work can be performed much faster.
- Work is consistent in general, more consistent than human work.
- Increased productivity and profitability as well as a competitive advantage are the major drivers of AI.

Diff: 3 Page Ref: 52

69) Describe and define Big Data. Why is a search engine a Big Data application?

Answer:

- Big Data is data that cannot be stored in a single storage unit. Big Data typically refers to data that is arriving in many different forms, be they structured, unstructured, or in a stream. Major sources of such data are clickstreams from Web sites, postings on social media sites such as Facebook, or data from traffic, sensors, or weather.
- A Web search engine such as Google needs to search and index billions of Web pages in order to give you relevant search results in a fraction of a second. Although this is not done in real time, generating an index of all the Web pages on the Internet is not an easy task.

Diff: 3 Page Ref: 37

70) Select an analytic application and discuss its related business questions and business values  
(hint: see table 1.1)

Answer: Student selection of applications will vary, but good details on the questions and values are found in table 1.1.

Diff: 2 Page Ref: 48

***Analytics, Data Science, & Artificial Intelligence, 11e (Sharda)***

**Chapter 2 Artificial Intelligence Concepts, Drivers, Major Technologies, and Business Applications**

1) The INRIX case illustrates to us how the collection and analysis of a selected subset of information can improve vehicles' mobility in large cities.

Answer: FALSE

Diff: 2 Page Ref: 76

2) Many experts agree that AI is concerned with two basic ideas: (1) the study of human thought processes (to understand what intelligence is) and (2) the representation and duplication of those thought processes in machines.

Answer: TRUE

Diff: 2 Page Ref: 76

3) A well-known early application of artificial intelligence was the chess program hosted at IBM's supercomputer (Deep Blue).

Answer: TRUE

Diff: 2 Page Ref: 76

4) Most of the existing AI applications, which are between assisted and autonomous, are referred to as directed intelligence.

Answer: FALSE

Diff: 1 Page Ref: 82

5) The Garner Test is a well-known attempt to measure the intelligence level of AI machines.

Answer: FALSE

Diff: 3 Page Ref: 85

6) AI machines have demonstrated superiority over humans in playing complex games such as chess.

Answer: TRUE

Diff: 2 Page Ref: 84

7) Intelligent agents do not have the ability to learn by using and expanding the knowledge embedded in them.

Answer: FALSE

Diff: 3 Page Ref: 87

8) Intelligent agents are effective tools for overcoming the most critical burden of the Internet information overload and making computers more viable decision support tools.

Answer: TRUE

Diff: 2 Page Ref: 87

9) Routine decisions are more likely to be fully automated, especially if they are simple.

Answer: TRUE

Diff: 2 Page Ref: 96

10) Beginning in 2015, researchers recognized the opportunity of using AI for supporting the decision-making process and for completely automating decision making.

Answer: FALSE

Diff: 2 Page Ref: 95

11) The process of automated decision-making starts with knowledge refinement.

Answer: FALSE

Diff: 3 Page Ref: 94

12) Accountants use of AI, including bots and professional routines, has increased.

Answer: TRUE

Diff: 2 Page Ref: 99-100

13) Advancements in AI are improving several areas in the insurance industry, mostly in issuing policies and handling claims.

Answer: TRUE

Diff: 2 Page Ref: 103

14) AI in banking help banks improve only their back-office operations.

Answer: FALSE

Diff: 2 Page Ref: 102

15) After the initial hire, training and retraining employees is generally unimportant.

Answer: FALSE

Diff: 1 Page Ref: 105

16) Wislow sees the use of AI as a continuation of automation that supports HRM and keeps changing it.

Answer: TRUE

Diff: 1 Page Ref: 105

17) The use of chatbots in HRM is increasing rapidly. Their ability to provide current information to employees anytime is a major reason.

Answer: TRUE

Diff: 2 Page Ref: 106

18) AI can help in predicting the impact of different customer service options using ad targeting.

Answer: FALSE

Diff: 2 Page Ref: 107

19) NLP can be used for generating user documentation.

Answer: TRUE

Diff: 2 Page Ref: 108

20) AI can be used to mimic the experience of in-store sales people.

Answer: TRUE

Diff: 2 Page Ref: 110

21) Which of the following is not listed in Gartner's 2016 and 2017 Hype Cycles for Emerging Technologies?

- A) natural language questions and answering
- B) CRM systems
- C) virtual personal assistants
- D) IoT platforms

Answer: B

Diff: 3 Page Ref: 76

22) Which of the following is not a foundation of AI?

- A) neurology
- B) IoT
- C) intelligent agents
- D) statistics

Answer: C

Diff: 3 Page Ref: 77

23) Which of the following is not a technology or application of AI?

- A) speech understanding
- B) linguistics
- C) machine learning
- D) smart homes

Answer: B

Diff: 3 Page Ref: 77

24) Which of the following is not a limitation of AIW?

- A) lack human touch and feel
- B) lack attention to non-task surroundings
- C) AI optimizes knowledge work
- D) can be programmed to create destruction

Answer: C

Diff: 2 Page Ref: 81

25) In which area below does AI not have an advantage over human?

- A) computational speed
- B) consistency
- C) emotional understanding
- D) durability

Answer: C

Diff: 2 Page Ref: 84

26) Which of the following universities is not actively studying the IQ of AI?

- A) University of Illinois
- B) Massachusetts Institute of Technology
- C) Stanford University
- D) Portland University

Answer: D

Diff: 2 Page Ref: 85

27) Which of the following strives to have computers produce ordinary spoken language so that people can understand the computers more easily?

- A) natural language processing
- B) natural language generation
- C) natural language understanding
- D) intelligent agents

Answer: B

Diff: 3 Page Ref: 92

28) For many intelligent systems to work, it is necessary for them to have knowledge. The process of acquiring this knowledge is referred to as:

- A) natural intelligence processing.
- B) deep learning.
- C) knowledge acquisition.
- D) knowledge representation.

Answer: C

Diff: 3 Page Ref: 93

29) This type of algorithm is necessary for making large-scale decisions, but may be difficult due to difficulties in measuring costs, risks, and benefits.

- A) problem identification
- B) decision nature identification
- C) method of least squares
- D) cost-benefit and risk analyses

Answer: D

Diff: 3 Page Ref: 96

30) Which of the following is not a prediction of the effect of AI on accountants?

- A) AI and analytics will automate many routine tasks done today by accountants
- B) many accountants may lose their job
- C) accountants will need to manage AI-based accounting systems
- D) AI will drive changes in the tax code

Answer: D

Diff: 3 Page Ref: 101

- 31) Which of the following is not a key finding related to the use of AI in banking?
- A) Technologies help banks improve both their front-office and back-office operations.
  - B) Growth of AI applications in banking has slowed.
  - C) Facial recognition is used for safer online banking.
  - D) Advanced analytics helps customers with investment decision.

Answer: B

Diff: 3 Page Ref: 102

- 32) What is a Salesforce product that is an AI set of technologies that is used for enhancing customer interactions and supporting sales?

- A) Mendel
- B) Hawking
- C) Turing
- D) Einstein

Answer: D

Diff: 3 Page Ref: 108

- 33) When comparing artificial intelligence versus human intelligence how would cost be compared?

- A) usually low and declining/may be high and increasing
- B) usually low and declining/may be high but decreasing
- C) usually high and increasing/may be high but decreasing
- D) usually high and increasing/ may be high and increasing

Answer: A

Diff: 3 Page Ref: 84

- 34) When comparing artificial intelligence versus human intelligence how would form be compared?

- A) numbers/signals
- B) numbers/pictograms
- C) signals/numbers
- D) signals/pictograms

Answer: A

Diff: 3 Page Ref: 84

- 35) Robots can help with online shopping by collecting shopping information, matching buyers and products, and conducting price and capability comparisons. These are known as:

- A) shopbots.
- B) EC droids.
- C) Turing AI toys.
- D) CRM.

Answer: A

Diff: 2 Page Ref: 92

36) What is the recognition and understanding of spoken languages by a computer?

- A) contextual analysis
- B) synthetic language processing
- C) speech understanding
- D) accent obfuscation

Answer: C

Diff: 2 Page Ref: 92

37) What refers to the integration of digital information with the user environment in real time?

- A) natural language processing
- B) virtual reality
- C) augmented reality
- D) deep learning

Answer: C

Diff: 2 Page Ref: 95

38) What is the application of knowledge derived from cognitive science (the study of the human brain) and computer science theories in order to simulate the human thought processes so that computers can exhibit and/or support decision-making and problem-solving capabilities?

- A) natural language processing
- B) virtual reality
- C) augmented reality
- D) cognitive computing

Answer: D

Diff: 2 Page Ref: 94

39) This activity can be complex because it is necessary to make sure what knowledge is needed.

It must fit the desired system.

- A) knowledge identification
- B) knowledge acquisition
- C) knowledge representation
- D) knowledge reasoning

Answer: B

Diff: 2 Page Ref: 93

40) "The capabilities of a machine to imitate intelligent human behavior" is the definition of:

- A) knowledge acquisition.
- B) deep learning.
- C) the Turing test.
- D) artificial intelligence.

Answer: D

Diff: 3 Page Ref: 76

41) One of the goals of AI is to \_\_\_\_\_ and properly react to changes in the environment that influence specific business processes and operations.

Answer: perceive

Diff: 1 Page Ref: 78

42) One of the benefits of AI is that AI machines can work \_\_\_\_\_ or be assistants to humans.

Answer: autonomously

Diff: 2 Page Ref: 79

43) The \_\_\_\_\_ is a people-made machine that is desired to be as intelligent, creative, and self-aware as humans.

Answer: artificial brain

Diff: 2 Page Ref: 82

44) \_\_\_\_\_ is equivalent mostly to weak AI, which works only in narrow domains.

Answer: Assisted intelligence

Diff: 2 Page Ref: 81

45) \_\_\_\_\_ can be considered to be an umbrella term and is usually measured by an IQ test.

Answer: Intelligence

Diff: 2 Page Ref: 83

46) A test known as the \_\_\_\_\_ Test determines whether a computer exhibits intelligent behavior.

Answer: Turing

Diff: 1 Page Ref: 85

47) An \_\_\_\_\_ is an autonomous, relatively small computer software program that observes and acts upon changes in its environment by running specific tasks autonomously.

Answer: intelligent agent (IA)

Diff: 2 Page Ref: 87

48) At this time, AI systems do not have the same learning capabilities that humans have; rather, they have simplistic \_\_\_\_\_.

Answer: machine learning

Diff: 2 Page Ref: 88

49) Robots that match buyers and products and conduct price and capability comparisons are known as \_\_\_\_\_.

Answer: shopbots

Diff: 2 Page Ref: 92

50) \_\_\_\_\_ is a technology that gives users the ability to communicate with a computer in their native language.

Answer: Natural language processing (NLP)

Diff: 2 Page Ref: 92

51) \_\_\_\_\_ computing is the application of knowledge derived from cognitive science (the study of the human brain) and computer science theories in order to simulate the human thought processes (an AI objective) so that computers can exhibit and/or support decision-making and problem-solving capabilities.

Answer: Cognitive

Diff: 3 Page Ref: 94

52) AI can drive some types of decisions many times \_\_\_\_\_ and more consistently than humans can.

Answer: faster

Diff: 2 Page Ref: 95

53) The report "AI and the Future of Accountancy" from ICAEW (2017) points to the use of machine

learning for detecting \_\_\_\_\_ and predicting fraudulent activities.

Answer: fraud

Diff: 3 Page Ref: 101

54) The major objectives of the AI support are to improve analysis results and enhance \_\_\_\_\_ experience.

Answer: customer

Diff: 2 Page Ref: 103

55) \_\_\_\_\_ help banks identify and block fraudulent activities including money laundering.

Answer: AI algorithms

Diff: 1 Page Ref: 102

56) The use of \_\_\_\_\_ in HRM is increasing rapidly due to their ability to provide current information to employees anytime is a major reason.

Answer: chatbots

Diff: 2 Page Ref: 106

57) Compared to other business areas, there are probably more applications of AI in \_\_\_\_\_ and advertising.

Answer: marketing

Diff: 2 Page Ref: 107

58) Using \_\_\_\_\_ retailers can learn about customers' needs and provide targeted advertisements and product recommendations directly.

Answer: social semantics

Diff: 2 Page Ref: 107

59) Salesforce \_\_\_\_\_ is an AI set of technologies that is used for enhancing customer interactions and supporting sales.

Answer: Einstein

Diff: 2 Page Ref: 108

60) Discuss the drivers of AI.

Answer: The use of AI has been driven by the following forces:

- People's interest in smart machines and artificial brains
- The low cost of AI applications versus the high cost of manual labor (doing the same work)
- The desire of large tech companies to capture competitive advantage and market share of the AI market and their willingness to invest billions of dollars in AI
- The pressure on management to increase productivity and speed
- The availability of quality data contributing to the progress of AI
- The increasing functionalities and reduced cost of computers in general
- The development of new technologies, particularly cloud computing

Diff: 2 Page Ref: 79

61) Describe the Turing test.

Answer: According to this test, a computer can be considered smart only when a human interviewer asking the same questions to both an unseen human and an unseen computer cannot determine which is which. This test is limited to a question-and-answer (Q&A) mode. To pass the Turing Test, a computer needs to be able to understand a human language (NLP), to possess human intelligence (e.g., have a knowledge base), to reason using its stored knowledge, and to be able to learn from its experiences (machine learning).

Diff: 3 Page Ref: 85

62) List and discuss two new emerging AI technologies addressed in the chapter.

Answer: Several new AI technologies are emerging. Here are a few examples:

- Effective computing. These technologies detect the emotional conditions of people and suggest how to deal with discovered problems
- Biometric analysis. These technologies can verify an identity based on unique biological traits that are compared to stored ones (e.g., facial recognition)

Diff: 2 Page Ref: 94

63) Discuss some issues and factors that would drive the decision to successfully use AI.

Answer: Several issues determine the justification of using AI and its chance of success. These include:

- The nature of the decision. For example, routine decisions are more likely to be fully automated, especially if they are simple.
- The method of support, what technology(ies) is (are) used. Initially, automated decision supports were rule-based. Practically, expert systems were created to generate solutions to specific decision situations in well-defined domains. Another popular technology mentioned earlier was "recommender," which appeared with e-commerce in the 1990s. Today, there is an increased use of machine learning and deep learning. A related technology is that of pattern recognition. Today, attention is also given to biometric types of recognition.

Diff: 2 Page Ref: 96

64) According to ICAEW (2017), what are the advantages of AI in accounting?

Answer: The report sees the advantage of AI by:

- Providing cheaper and better data to support decision making and solve accounting problems
- Generating insight from data analysis
- Freeing time of accountants to concentrate on problem solving and decision making

Diff: 2 Page Ref: 101

65) List the ways that Savar (2017) believes AI will transform HRM, especially in recruiting.

Answer:

1. reducing human bias
2. increasing efficiency, productivity, and insight in evaluating candidates
3. improving relationships with current employees

Diff: 2 Page Ref: 105

66) List the ways Meister (2017) suggests introducing AI to HRM operations.

Answer:

1. Experiment with a variety of chatbots.
2. Develop a team approach involving other functional areas.
3. Properly plan a technology roadmap for both the short and long term, including shared vision with other functional areas.
4. Identify new job roles and modifications in existing job roles in the transformed environment.
5. Train and educate the HRM team to understand AI and gain expertise in it.

Diff: 2 Page Ref: 106

67) Discuss how conversational bots can improve customer experience.

Answer: Gangwani (2016) lists the following ways to improve customers' experiences:

1. Use NLP for generating user documentation. This capability also improves the customer—machine dialogue.
2. Use visual categorization to organize images (for example, see IBM's Visual Recognition and Clarifai).
3. Provide personalized and segmented services by analyzing customer data. This includes improving shopping experience and CRM.

Diff: 2 Page Ref: 108

68) Describe how AI can be used in marketing to provide lead generation.

Answer: As seen in the case of Einstein, AI can help generate sales leads by analyzing customers' data. The program can generate predictions. Insights can be generated by intelligent analytics.

Diff: 1 Page Ref: 110

69) Describe the model for the use of intelligent technologies in manufacturing companies.

Answer: Bolland, et al. (2017) proposed a five-component model for manufacturing companies to use intelligent

technologies. This model includes:

- Streamlining processes, including minimizing waste, redesigning processes, and using business process management (BPM)
- Outsourcing certain business processes, including going offshore
- Using intelligence in decision making by deploying AI and analytics
- Replacing human tasks with intelligent automation
- Digitizing customers' experiences

Diff: 3 Page Ref: 77-111

70) Describe implementation model and why you feel it will be significant.

Answer: Student opinions, responses and justifications will vary.

Diff: 3 Page Ref: 77-111

*Analytics, Data Science, & Artificial Intelligence, 11e (Sharda)*  
**Chapter 3 Nature of Data, Statistical Modeling, and Visualization**

1) It is possible to perform analytics without data.

Answer: FALSE

Diff: 1 Page Ref: 121

2) When we refer to data, we are only referring to information that is well structured.

Answer: FALSE

Diff: 2 Page Ref: 121

3) Nominal data refers to measurements.

Answer: FALSE

Diff: 1 Page Ref: 125

4) Numeric data is an example of structured data.

Answer: TRUE

Diff: 2 Page Ref: 125

5) Data preprocessing is generally simple, straightforward, and quick.

Answer: FALSE

Diff: 2 Page Ref: 129

6) Normalizing data is a common step in the data consolidation process.

Answer: FALSE

Diff: 2 Page Ref: 130

7) The OLAP branch of descriptive analytics has also been called business intelligence.

Answer: TRUE

Diff: 2 Page Ref: 139

8) Skewness is a measure of symmetry in a distribution.

Answer: FALSE

Diff: 2 Page Ref: 145

9) A time series is a sequence of data points of the variable of interest, measured and represented at successive points in time spaced at uniform time intervals.

Answer: TRUE

Diff: 2 Page Ref: 156

10) The linearity assumption in a regression model states that the errors of the response variable are uncorrelated with each other.

Answer: FALSE

Diff: 2 Page Ref: 154

11) A data dashboard is any communication artifact prepared with the specific intention of conveying information in a digestible form to whoever needs it whenever and wherever.

Answer: FALSE

Diff: 2 Page Ref: 163

12) There has been an increase in the use of computing power to produce unified reports.

Answer: TRUE

Diff: 2 Page Ref: 164

13) Information is the aggregation, summarization, and contextualization of data.

Answer: TRUE

Diff: 2 Page Ref: 166

14) Data visualization is closely related to the fields of DW management and MIS application development.

Answer: FALSE

Diff: 2 Page Ref: 166

15) The Gantt chart (also called a network diagram) is developed primarily to simplify the planning and scheduling of large and complex projects.

Answer: FALSE

Diff: 3 Page Ref: 173

16) Some charts or graphs are better at answering certain types of questions.

Answer: TRUE

Diff: 1 Page Ref: 171

17) There is a growing number of data visualization techniques being used to better portray business results.

Answer: TRUE

Diff: 2 Page Ref: 176

18) According to Eckerson the most distinctive feature of a dashboard is its three layers of information.

Answer: TRUE

Diff: 1 Page Ref: 185

19) Dashboards are not a new concept and their roots can be traced at least to the executive information system of the 1980s.

Answer: TRUE

Diff: 2 Page Ref: 184

20) An ideal dashboard would not be transparent to the user.

Answer: FALSE

Diff: 2 Page Ref: 187

21) To satisfy this requirement, this data is recorded at or near the time of the event or observation so that the time delay—related misrepresentation is minimized.

- A) data source reliability
- B) data accessibility
- C) data granularity
- D) data currency

Answer: D

Diff: 2 Page Ref: 124

22) To satisfy this requirement, this data has variables that are defined at the lowest (or as low as required) level of detail for the intended use.

- A) data source reliability
- B) data accessibility
- C) data granularity
- D) data currency

Answer: C

Diff: 2 Page Ref: 124

23) These contain codes assigned to objects or events as labels that also represent the rank order among them.

- A) numeric data
- B) ordinal data
- C) interval data
- D) nominal data

Answer: B

Diff: 2 Page Ref: 126

24) These contain measurements of simple codes assigned to objects as labels, which are not measurements.

- A) numeric data
- B) ordinal data
- C) interval data
- D) nominal data

Answer: D

Diff: 2 Page Ref: 125

25) Eliminating duplicate data is typically a part of which data preprocessing step?

- A) Data Consolidation
- B) Data Cleaning
- C) Data Transformation
- D) Data Reduction

Answer: B

Diff: 2 Page Ref: 130

26) Reducing a data set's volume can be a portion of which data preprocessing step?

- A) Data Consolidation
- B) Data Cleaning
- C) Data Transformation
- D) Data Reduction

Answer: D

Diff: 2 Page Ref: 130

27) What measure is used to characterize the peak/tall/skinny nature of the distribution?

- A) skewness
- B) standard deviation
- C) whisker plot
- D) kurtosis

Answer: D

Diff: 3 Page Ref: 146

28) Which of the following is not a measure of central tendency?

- A) mean
- B) median
- C) range
- D) mode

Answer: C

Diff: 2 Page Ref: 142

29) This assumption in a regression analysis states that the explanatory variables are not correlated.

- A) linearity
- B) multicollinearity
- C) independence
- D) normality

Answer: B

Diff: 2 Page Ref: 155

30) This assumption in a regression analysis states that the relationship between the response variable and the explanatory variables is linear.

- A) linearity
- B) multicollinearity
- C) independence
- D) normality

Answer: A

Diff: 2 Page Ref: 154

31) This type of report presents an integrated view of success in an organization.

- A) metric management report
- B) dashboard report
- C) balanced scorecard report
- D) none of these

Answer: C

Diff: 2 Page Ref: 165

32) This type of report may include color-coded traffic lights for different performance levels.

- A) metric management report
- B) dashboard report
- C) balanced scorecard report
- D) none of these

Answer: B

Diff: 2 Page Ref: 165

33) The predecessors to data visualization date back to:

- A) second century AD.
- B) 1600's.
- C) 1800's.
- D) 1990's.

Answer: A

Diff: 3 Page Ref: 167

34) What made the digital distribution of both data and visualization more accessible to a broader audience?

- A) the printing press
- B) the pony express
- C) personal computers
- D) the Internet

Answer: D

Diff: 3 Page Ref: 168

35) This figure is often used to explore the relationship between two or three variables (in 2D or 3D visuals).

- A) line chart
- B) bar chart
- C) pie chart
- D) scatter plot

Answer: D

Diff: 2 Page Ref: 172

36) This figure portrays project timelines, project tasks/activity durations, and overlap among the tasks/activities.

- A) PERT chart
- B) Gantt chart
- C) histogram
- D) bubble chart

Answer: B

Diff: 2 Page Ref: 173

37) The combination of visualization and predictive analytics is referred to as:

- A) visualization+.
- B) predictive analytics+.
- C) visual analytics.
- D) advanced histograms.

Answer: C

Diff: 3 Page Ref: 178

38) Which of the following is not a best practice in dashboard design?

- A) validate the dashboard design by a usability specialist
- B) disregard guided analytics in lieu of a detailed manual
- C) present information in three different levels
- D) enrich the dashboard with business-user comments

Answer: B

Diff: 2 Page Ref: 187-8

39) This layer of dashboard information allows for of key performance metrics.

- A) monitoring
- B) analysis
- C) management
- D) export

Answer: A

Diff: 2 Page Ref: 185

40) This layer of dashboard information provides summarized dimensional data.

- A) monitoring
- B) analysis
- C) management
- D) export

Answer: B

Diff: 2 Page Ref: 185

41) Automated data collection systems are not only enabling businesses to collect more volumes of data but also enhancing the data quality and \_\_\_\_\_.

Answer: integrity

Diff: 2 Page Ref: 121

42) Making data \_\_\_\_\_ for prediction means that data sets must be transformed into a flat-file format and made ready for ingestion into those predictive algorithms.

Answer: analytics ready

Diff: 2 Page Ref: 122

43) The \_\_\_\_\_ data can be subdivided into nominal or ordinal data.

Answer: categorical

Diff: 2 Page Ref: 125

44) \_\_\_\_\_ data include measurement variables commonly found in the physical sciences and engineering.

Answer: Ratio

Diff: 3 Page Ref: 126

45) In data reduction, reducing the number of variables is referred to as \_\_\_\_\_ reduction.

Answer: dimensional

Diff: 2 Page Ref: 131

46) Data are \_\_\_\_\_ between a certain minimum and maximum for all variables to mitigate the potential bias.

Answer: normalized

Diff: 3 Page Ref: 130

47) Measures of \_\_\_\_\_ are the mathematical methods used to estimate or describe the degree of variation in a given variable of interest.

Answer: dispersion

Diff: 2 Page Ref: 142

48) \_\_\_\_\_ is collection of mathematical techniques to characterize and interpret data.

Answer: Statistics

Diff: 1 Page Ref: 139

49) Logistic regression is a very popular, statistically sound, probability-based classification algorithm that employs supervised \_\_\_\_\_.

Answer: learning

Diff: 2 Page Ref: 155

50) \_\_\_\_\_ makes no a priori assumption of whether one variable is dependent on the other(s) and is not concerned with the relationship between variables.

Answer: Correlation

Diff: 2 Page Ref: 151

51) \_\_\_\_\_ are typically enterprise-wide agreed upon targets to be tracked against over a period of time.

Answer: Key performance indicators or KPIs

Diff: 3 Page Ref: 165

52) Key to any successful report are \_\_\_\_\_, brevity, completeness, and correctness.

Answer: clarity

Diff: 2 Page Ref: 164

53) \_\_\_\_\_ has also single-handedly democratized both the interface conventions and the technology for displaying interactive geography online

Answer: Google Maps

Diff: 2 Page Ref: 168

54) Data visualization usually means \_\_\_\_\_ visualization.

Answer: information

Diff: 1 Page Ref: 166

55) The \_\_\_\_\_ chart is often an enhanced version of scatter plots.

Answer: bubble

Diff: 2 Page Ref: 172

56) \_\_\_\_\_ are used to show the frequency distribution of one variable or several variables.

Answer: Histograms

Diff: 2 Page Ref: 172

57) When presenting your data analysis it is often helpful to view your analysis as a data rich \_\_\_\_\_.

Answer: story

Diff: 2 Page Ref: 179

58) An ideal dashboard would provide \_\_\_\_\_ to underlying data sources or reports, providing more detail about the underlying comparative and evaluative context.

Answer: drill-down or drill-through

Diff: 2 Page Ref: 187

59) Specialized display \_\_\_\_\_ allow easy visual comparison of information with a minimum of set up when using a dashboard.

Answer: widgets

Diff: 2 Page Ref: 185

60) An ideal dashboard requires little, if any, customized \_\_\_\_\_ to implement, deploy, and maintain.

Answer: coding

Diff: 2 Page Ref: 187

61) Select and discuss one of the best practices in dashboard design.

Answer: Student selections will vary, but they will discuss one of the following best practices:

- Benchmark Key Performance Indicators with Industry Standards
- Wrap the Dashboard Metrics with Contextual Metadata
- Validate the Dashboard Design by a Usability Specialist
- Prioritize and Rank Alerts/Exceptions Streamed to the Dashboard
- Enrich the Dashboard with Business-User Comments
- Present Information in Three Different Levels
- Pick the Right Visual Construct Using Dashboard Design Principles
- Provide for Guided Analytics

Diff: 2 Page Ref: 187-8

62) List and describe the three layers of an ideal dashboard.

Answer:

1. Monitoring: Graphical, abstracted data to monitor key performance metrics.
2. Analysis: Summarized dimensional data to analyze the root cause of problems.
3. Management: Detailed operational data that identify what actions to take to resolve a problem.

Diff: 2 Page Ref: 185

63) Describe the use of both Gantt and Pert charts.

Answer:

- A Gantt chart is a special case of horizontal bar charts used to portray project timelines, project tasks/activity durations, and overlap among the tasks/activities. By showing start and end dates/times of tasks/activities and the overlapping relationships, Gantt charts provide an invaluable aid for management and control of projects. For instance, Gantt charts are often used to show project timelines, task overlaps, relative task completions (a partial bar illustrating the completion percentage inside a bar that shows the actual task duration), resources assigned to each task, milestones, and deliverables.
- The PERT chart (also called a network diagram) is developed primarily to simplify the planning and scheduling of large and complex projects. A PERT chart shows precedence relationships among project activities/tasks. It is composed of nodes (represented as circles or rectangles) and edges (represented with directed arrows). Based on the selected PERT chart convention, either nodes or the edges can be used to represent the project activities/tasks (activity-on-node versus activity-on-arrow representation schema).

Diff: 2 Page Ref: 173

64) Discuss how data can be classified.

Answer: At the highest level of abstraction, one can classify data as structured and unstructured (or semistructured). Unstructured data/semistructured data are composed of any combination of textual, imagery, voice, and Web content. Unstructured/semistructured data will be covered in more detail in the text mining and Web mining chapter. Structured data are what data mining algorithms use and can be classified as categorical or numeric. The categorical data can be subdivided into nominal or ordinal data, whereas numeric data can be subdivided into intervals or ratios.

Diff: 2 Page Ref: 125

65) List the four steps of data preprocessing and include examples of activities that may be completed at each step.

Answer:

- Data Consolidation
  - Collect data
  - Select data
  - Integrate data
- Data Cleaning
  - Impute values
  - Reduce noise
  - Eliminate duplicates
- Data Transformation
  - Normalize data
  - Discretize data
  - Create attributes
- Data Reduction
  - Reduce dimension
  - Reduce volume
  - Balance data

Diff: 2 Page Ref: 130

66) List and briefly define the central tendency measures of descriptive statistics.

Answer:

- The arithmetic mean (or simply mean or average) is the sum of all the values/observations divided by the number of observations in the data set.
- The median is the measure of center value in a given data set.
- The mode is the observation that occurs most frequently.

Diff: 2 Page Ref: 140-141

67) What is the difference between correlation and regression?

Answer: Correlation makes no a priori assumption of whether one variable is dependent on the other(s) and is not concerned with the relationship between variables; instead it gives an estimate on the degree of association between the variables. On the other hand, regression attempts to describe the dependence of a response variable on one (or more) explanatory variables where it implicitly assumes that there is a one-way causal effect from the explanatory variable(s) to the response variable, regardless of whether the path of effect is direct or indirect. Also, although correlation is interested in the low-level relationships between two variables, regression is concerned with the relationships between all explanatory variables and the response variable.

Diff: 3 Page Ref: 151

68) How can you determine if a regression model is good enough?

Answer: In the simplest sense, a well-fitting regression model results in predicted values close to the observed data values. For the numerical assessment, three statistical measures are often used in evaluating the fit of a regression model: R<sup>2</sup>(R - squared), the overall F-test, and the root mean square error (RMSE). All three of these measures are based on the sums of the square errors (how far the data are from the mean and how far the data are from the model's predicted values). Different combinations of these two values provide different information about how the regression model compares to the mean model.

Diff: 3 Page Ref: 153

69) List the five assumptions made in linear regressions and select one to discuss in depth.

Answer:

1. Linearity. This assumption states that the relationship between the response variable and the explanatory variables is linear. That is, the expected value of the response variable is a straight-line function of each explanatory variable while holding all other explanatory variables fixed. Also, the slope of the line does not depend on the values of the other variables. It also implies that the effects of different explanatory variables on the expected value of the response variable are additive in nature.

2. Independence (of errors). This assumption states that the errors of the response variable are uncorrelated with each other. This independence of the errors is weaker than actual statistical independence, which is a stronger condition and is often not needed for linear regression analysis.

3. Normality (of errors). This assumption states that the errors of the response variable are normally distributed. That is, they are supposed to be totally random and should not represent any nonrandom patterns.

4. Constant variance (of errors). This assumption, also called homoscedasticity, states that the response variables have the same variance in their error regardless of the values of the explanatory variables. In practice, this assumption is invalid if the response variable varies over a wide enough range/scale.

5. Multicollinearity. This assumption states that the explanatory variables are not correlated (i.e., do not replicate the same but provide a different perspective of the information needed for the model). Multicollinearity can be triggered by having two or more perfectly correlated explanatory variables presented to the model (e.g., if the same explanatory variable is mistakenly included in the model twice, one with a slight transformation of the same variable). A correlation-based data assessment usually catches this error.

Diff: 2 Page Ref: 154-5

70) Describe the three main types of business reports.

Answer: Metric management Reports - In many organizations, business performance is managed through outcome-oriented metrics. For external groups, these are service-level agreements. For internal management, they are key performance indicators (KPIs). Typically, there are enterprise-wide agreed upon targets to be tracked against over a period of time. They can be used as part of other management strategies such as Six Sigma or total quality management.

Dashboard-Type Reports - A popular idea in business reporting in recent years has been to present a range of different performance indicators on one page like a dashboard in a car.

Typically, dashboard vendors would provide a set of predefined reports with static elements and fixed structure but also allow for customization of the dashboard widgets, views, and set targets for various metrics. It is common to have color-coded traffic lights defined for performance (red, orange, green) to draw management's attention to particular areas. A more detailed description of dashboards can be found in a later section of this chapter.

Balanced Scorecard Reports - This is a method developed by Kaplan and Norton that attempts to present an integrated view of success in an organization. In addition to financial performance, balanced scorecard—type reports also include customer, business process, and learning and growth perspectives. More details on balanced scorecards are provided in a later section in this chapter.

Diff: 2    Page Ref: 165

1) In the Miami-Dade Police Department case, the department chose to start small and grow big in order to demonstrate success with data mining.

Answer: TRUE

Diff: 2 Page Ref: 196

2) The cost of data storage has plummeted recently, making data mining feasible for more firms.

Answer: TRUE

Diff: 2 Page Ref: 199

3) Data mining can be very useful in detecting patterns such as credit card fraud, but is of little help in improving sales.

Answer: FALSE

Diff: 2 Page Ref: 199

4) The entire focus of the predictive analytics system in the Visa case was on detecting and handling fraudulent charges for the company's benefit.

Answer: FALSE

Diff: 3 Page Ref: 199-200

5) If using a mining analogy, "knowledge mining" would be a more appropriate term than "data mining."

Answer: TRUE

Diff: 2 Page Ref: 201

6) Data mining requires specialized data analysts to ask ad hoc questions and obtain answers quickly from the system.

Answer: FALSE

Diff: 2 Page Ref: 202

7) Ratio data is a type of categorical data.

Answer: FALSE

Diff: 1 Page Ref: 213

8) Decision trees are most appropriate for categorical data and interval data.

Answer: TRUE

Diff: 1 Page Ref: 206

9) In the terrorist funding case study, predictive analytics helped to identify abnormal transfer prices on exports.

Answer: TRUE

Diff: 1 Page Ref: 210-11

10) In data mining, classification models help in prediction.

Answer: TRUE

Diff: 2 Page Ref: 221

11) Statistics and data mining both look for data sets that are as large as possible.

Answer: FALSE

Diff: 2 Page Ref: 208

12) Using data mining on data about imports and exports can help to detect tax avoidance and money laundering.

Answer: TRUE

Diff: 1 Page Ref: 210-11

13) In the cancer research case study, data mining algorithms that predict cancer survivability with high predictive power are good replacements for medical professionals.

Answer: FALSE

Diff: 2 Page Ref: 214-15

14) During classification in data mining, a false positive is an occurrence classified as true by the algorithm while being false in reality.

Answer: TRUE

Diff: 2 Page Ref: 215

15) When training a data mining model, the testing dataset is always larger than the training dataset.

Answer: FALSE

Diff: 2 Page Ref: 222

16) When a problem has many attributes that impact the classification of different patterns, decision trees may be a useful approach.

Answer: TRUE

Diff: 2 Page Ref: 226-27

17) The Gini index has been used in economics to measure the diversity of a population.

Answer: TRUE

Diff: 2 Page Ref: 227

18) Market basket analysis is a useful and entertaining way to explain data mining to a technologically less savvy audience, but it has little business significance.

Answer: FALSE

Diff: 2 Page Ref: 232

19) The number of users of free/open source data mining software now exceeds that of users of commercial software versions.

Answer: TRUE

Diff: 1 Page Ref: 236

20) Data that is collected, stored, and analyzed in data mining is often private and personal.

There is no way to maintain individuals' privacy other than being very careful about physical data security.

Answer: FALSE

Diff: 2 Page Ref: 242

21) In the Miami-Dade Police Department case study, what types of analytics was used?

- A) diagnostic analytics
- B) prescriptive analytics
- C) descriptive analytics
- D) predictive analytics

Answer: D

Diff: 3 Page Ref: 195

22) Understanding customers better has helped Amazon and others become more successful. The understanding comes primarily from:

- A) collecting data about customers and transactions.
- B) developing a philosophy that is data analytics-centric.
- C) analyzing the vast data amounts routinely collected.
- D) asking the customers what they want.

Answer: C

Diff: 3 Page Ref: 198

23) All of the following statements about data mining are true EXCEPT:

- A) the process aspect means that data mining should be a one-step process to results.
- B) the novel aspect means that previously unknown patterns are discovered.
- C) the potentially useful aspect means that results should lead to some business benefit.
- D) the valid aspect means that the discovered patterns should hold true on new data.

Answer: A

Diff: 3 Page Ref: 201

24) What is the main reason parallel processing is sometimes used for data mining?

- A) because the hardware exists in most organizations and it is available to use
- B) because the most of the algorithms used for data mining require it
- C) because of the massive data amounts and search efforts involved
- D) because any strategic application requires parallel processing

Answer: C

Diff: 3 Page Ref: 202

25) The data field "ethnic group" can be best described as:

- A) nominal data.
- B) interval data.
- C) ordinal data.
- D) ratio data.

Answer: A

Diff: 2 Page Ref: 213

26) Which index has been used in economics to measure the diversity of a population?

- A) Atkinson

- B) Lorenz
- C) Stockholm
- D) Gini

Answer: D

Diff: 2 Page Ref: 227

27) Which broad area of data mining applications analyzes data, forming rules to distinguish between defined classes?

- A) associations
- B) visualization
- C) classification
- D) clustering

Answer: C

Diff: 2 Page Ref: 205

28) Which broad area of data mining applications partitions a collection of objects into natural groupings with similar features?

- A) associations
- B) visualization
- C) classification
- D) clustering

Answer: D

Diff: 2 Page Ref: 207

29) The data mining algorithm type used for classification somewhat resembling the biological neural networks in the human brain is:

- A) association rule mining.
- B) cluster analysis.
- C) decision trees.
- D) artificial neural networks.

Answer: D

Diff: 3 Page Ref: 205

30) Identifying and preventing incorrect claim payments and fraudulent activities falls under which type of data mining applications?

- A) insurance
- B) retailing and logistics
- C) customer relationship management
- D) computer hardware and software

Answer: A

Diff: 2 Page Ref: 209

- 31) All of the following statements about data mining are true EXCEPT:
- A) understanding the business goal is critical.
  - B) understanding the data, e.g., the relevant variables, is critical to success.
  - C) building the model takes the most time and effort.
  - D) data is typically preprocessed and/or cleaned before use.

Answer: C

Diff: 3 Page Ref: 212-214

- 32) Which data mining process/methodology is thought to be the most comprehensive, according to kdnuggets.com rankings?

- A) SEMMA
- B) proprietary organizational methodologies
- C) KDD Process
- D) CRISP-DM

Answer: D

Diff: 2 Page Ref: 219

- 33) Prediction problems where the variables have numeric values are most accurately defined as:

- A) classifications.
- B) regressions.
- C) associations.
- D) computations.

Answer: B

Diff: 3 Page Ref: 220

- 34) What does the robustness of a data mining method refer to?

- A) its ability to predict the outcome of a previously unknown data set accurately
- B) its speed of computation and computational costs in using the mode
- C) its ability to construct a prediction model efficiently given a large amount of data
- D) its ability to overcome noisy data to make somewhat accurate predictions

Answer: D

Diff: 3 Page Ref: 221

- 35) What does the scalability of a data mining method refer to?

- A) its ability to predict the outcome of a previously unknown data set accurately
- B) its speed of computation and computational costs in using the mode
- C) its ability to construct a prediction model efficiently given a large amount of data
- D) its ability to overcome noisy data to make somewhat accurate predictions

Answer: C

Diff: 3 Page Ref: 221

36) In estimating the accuracy of data mining (or other) classification models, the true positive rate is:

- A) the ratio of correctly classified positives divided by the total positive count.
- B) the ratio of correctly classified negatives divided by the total negative count.
- C) the ratio of correctly classified positives divided by the sum of correctly classified positives and incorrectly classified positives.
- D) the ratio of correctly classified positives divided by the sum of correctly classified positives and incorrectly classified negatives.

Answer: A

Diff: 2 Page Ref: 221

37) In data mining, finding an affinity of two products to be commonly together in a shopping cart is known as:

- A) association rule mining.
- B) cluster analysis.
- C) decision trees.
- D) artificial neural networks.

Answer: A

Diff: 2 Page Ref: 232-33

38) Third party providers of publicly available datasets protect the anonymity of the individuals in the data set primarily by:

- A) asking data users to use the data ethically.
- B) leaving in identifiers (e.g., name), but changing other variables.
- C) removing identifiers such as names and social security numbers.
- D) letting individuals in the data know their data is being accessed.

Answer: C

Diff: 3 Page Ref: 242-43

39) In the Target case study, why did Target send a teen maternity ads?

- A) Target's analytic model confused her with an older woman with a similar name.
- B) Target was sending ads to all women in a particular neighborhood.
- C) Target's analytic model suggested she was pregnant based on her buying habits.
- D) Target was using a special promotion that targeted all teens in her geographical area.

Answer: C

Diff: 2 Page Ref: 243-44

40) Which of the following is a data mining myth?

- A) Data mining is a multistep process that requires deliberate, proactive design and use.
- B) Data mining requires a separate, dedicated database.
- C) The current state-of-the-art is ready to go for almost any business.
- D) Newer Web-based tools enable managers of all educational levels to do data mining.

Answer: B

Diff: 2 Page Ref: 244-45

41) Not every business \_\_\_\_\_ can be solved with data mining.

Answer: problem

Diff: 1 Page Ref: 244

42) There has been an increase in data mining to deal with global competition and customers' more sophisticated \_\_\_\_\_ and wants.

Answer: needs

Diff: 2 Page Ref: 202

43) Knowledge extraction, pattern analysis, data archaeology, information harvesting, pattern searching, and data dredging are all alternative names for \_\_\_\_\_.

Answer: data mining

Diff: 1 Page Ref: 201

44) Data are often buried deep within very large \_\_\_\_\_, which sometimes contain data from several years.

Answer: databases

Diff: 1 Page Ref: 201

45) \_\_\_\_\_ represent the labels of multiple classes used to divide a variable into specific groups, examples of which include race, sex, age group, and educational level.

Answer: Categorical data

Diff: 2 Page Ref: 213

46) \_\_\_\_\_ data have finite nonordered values (e.g., gender data, which have two values: male and female).

Answer: Nominal

Diff: 2 Page Ref: 213

47) Patterns have been manually \_\_\_\_\_ from data by humans for centuries, but the increasing volume of data in modern times has created a need for more automatic approaches.

Answer: extracted

Diff: 2 Page Ref: 205

48) While prediction is largely experience and opinion based, \_\_\_\_\_ is data and model based.

Answer: forecasting

Diff: 2 Page Ref: 205

49) Whereas \_\_\_\_\_ starts with a well-defined proposition and hypothesis, data mining starts with a loosely defined discovery statement.

Answer: statistics

Diff: 2 Page Ref: 208

50) Customer \_\_\_\_\_ management extends traditional marketing by creating one-on-one relationships with customers.

Answer: relationship

Diff: 2 Page Ref: 208

51) In the terrorist funding case study, an observed price \_\_\_\_\_ may be related to income tax avoidance/evasion, money laundering, or terrorist financing.

Answer: deviation

Diff: 3 Page Ref: 210-11

52) Data preparation, the third step in the CRISP-DM data mining process, is more commonly known as \_\_\_\_\_.

Answer: data preprocessing

Diff: 2 Page Ref: 213-14

53) The data mining in cancer research case study explains that data mining methods are capable of extracting patterns and \_\_\_\_\_ hidden deep in large and complex medical databases.

Answer: relationships

Diff: 3 Page Ref: 214-15

54) Fayyad et al. (1996) defined \_\_\_\_\_ in databases as a process of using data mining methods to find useful information and patterns in the data.

Answer: knowledge discovery

Diff: 2 Page Ref: 218

55) In \_\_\_\_\_, a classification method, the complete data set is randomly split into mutually exclusive subsets of approximately equal size and tested multiple times on each left-out subset, using the others as a training set.

Answer: *k*-fold cross-validation

Diff: 2 Page Ref: 223

56) The basic idea behind a \_\_\_\_\_ is that it recursively divides a training set until each division consists entirely or primarily of examples from one class.

Answer: decision tree

Diff: 3 Page Ref: 227

57) \_\_\_\_\_ is the splitting mechanism used in ID3, which is perhaps the most widely known decision tree algorithm.

Answer: Information gain

Diff: 2 Page Ref: 228

58) Because of its successful application to retail business problems, association rule mining is commonly called \_\_\_\_\_.

Answer: market-basket analysis

Diff: 2 Page Ref: 232

59) The \_\_\_\_\_ is the most commonly used algorithm to discover association rules. Given a set of itemsets, the algorithm attempts to find subsets that are common to at least a minimum number of the itemsets.

Answer: Apriori algorithm

Diff: 2 Page Ref: 234-35

60) One way to accomplish privacy and protection of individuals' rights when data mining is by

\_\_\_\_\_ of the customer records prior to applying data mining applications, so that the records cannot be traced to an individual.

Answer: de-identification

Diff: 2 Page Ref: 242

61) List five reasons for the growing popularity of data mining in the business world.

Answer:

- More intense competition at the global scale driven by customers' ever-changing needs and wants in an increasingly saturated marketplace
- General recognition of the untapped value hidden in large data sources
- Consolidation and integration of database records, which enables a single view of customers, vendors, transactions, etc.
- Consolidation of databases and other data repositories into a single location in the form of a data warehouse
- The exponential increase in data processing and storage technologies
- Significant reduction in the cost of hardware and software for data storage and processing
- Movement toward the de-massification (conversion of information resources into nonphysical form) of business practices

Diff: 2 Page Ref: 199

62) Describe the difference between quantitative and qualitative data. Include definitions for nominal and ordinal data.

Answer: Quantitative data are measured using numeric values, or numeric data. Qualitative data, also known as categorical data, contain both nominal and ordinal data. Nominal data have finite nonordered values. Ordinal data have finite ordered values. Quantitative data can be readily represented by some sort of probability distribution. Qualitative data can be coded to numbers and then described by frequency distributions.

Diff: 2 Page Ref: 213

63) List and briefly describe the six steps of the CRISP-DM data mining process.

Answer:

- **Step 1: Business Understanding** - The key element of any data mining study is to know what the study is for. Answering such a question begins with a thorough understanding of the managerial need for new knowledge and an explicit specification of the business objective regarding the study to be conducted.
- **Step 2: Data Understanding** - A data mining study is specific to addressing a well-defined business task, and different business tasks require different sets of data. Following the business understanding, the main activity of the data mining process is to identify the relevant data from many available databases.
- **Step 3: Data Preparation** - The purpose of data preparation (or more commonly called data preprocessing) is to take the data identified in the previous step and prepare it for analysis by data mining methods. Compared to the other steps in CRISP-DM, data preprocessing consumes the most time and effort; most believe that this step accounts for roughly 80 percent of the total time spent on a data mining project.
- **Step 4: Model Building** - Here, various modeling techniques are selected and applied to an already prepared data set in order to address the specific business need. The model-building step also encompasses the assessment and comparative analysis of the various models built.
- **Step 5: Testing and Evaluation** - In step 5, the developed models are assessed and evaluated for their accuracy and generality. This step assesses the degree to which the selected model (or models) meets the business objectives and, if so, to what extent (i.e., do more models need to be developed and assessed).
- **Step 6: Deployment** - Depending on the requirements, the deployment phase can be as simple as generating a report or as complex as implementing a repeatable data mining process across the enterprise. In many cases, it is the customer, not the data analyst, who carries out the deployment steps.

Diff: 2    Page Ref: 211-217

64) Describe the role of the **simple split** in estimating the accuracy of classification models.

Answer: The **simple split** (or holdout or test sample estimation) partitions the data into two mutually exclusive subsets called a training set and a test set (or holdout set). It is common to designate two-thirds of the data as the training set and the remaining one-third as the test set. The training set is used by the inducer (model builder), and the built classifier is then tested on the test set. An exception to this rule occurs when the classifier is an artificial neural network. In this case, the data is partitioned into three mutually exclusive subsets: training, validation, and testing.

Diff: 2    Page Ref: 222

65) Briefly describe five techniques (or algorithms) that are used for classification modeling.

Answer:

- **Decision tree analysis.** Decision tree analysis (a machine-learning technique) is arguably the most popular classification technique in the data mining arena.
- **Statistical analysis.** Statistical techniques were the primary classification algorithm for many years until the emergence of machine-learning techniques. Statistical classification techniques include logistic regression and discriminant analysis.
- **Neural networks.** These are among the most popular machine-learning techniques that can be used for classification-type problems.
- **Case-based reasoning.** This approach uses historical cases to recognize commonalities in order to assign a new case into the most probable category.
- **Bayesian classifiers.** This approach uses probability theory to build classification models based on the past occurrences that are capable of placing a new instance into a most probable class (or category).
- **Genetic algorithms.** This approach uses the analogy of natural evolution to build directed-search-based mechanisms to classify data samples.
- **Rough sets.** This method takes into account the partial membership of class labels to predefined categories in building models (collection of rules) for classification problems.

Diff: 2 Page Ref: 226

66) Describe **cluster analysis** and some of its applications.

Answer: Cluster analysis is an exploratory data analysis tool for solving classification problems. The objective is to sort cases (e.g., people, things, events) into groups, or clusters, so that the degree of association is strong among members of the same cluster and weak among members of different clusters. Cluster analysis is an essential data mining method for classifying items, events, or concepts into common groupings called clusters. The method is commonly used in biology, medicine, genetics, social network analysis, anthropology, archaeology, astronomy, character recognition, and even in MIS development. As data mining has increased in popularity, the underlying techniques have been applied to business, especially to marketing. Cluster analysis has been used extensively for fraud detection (both credit card and e-commerce fraud) and market segmentation of customers in contemporary CRM systems.

Diff: 2 Page Ref: 228-31

67) In the data mining in Hollywood case study, how successful were the models in predicting the success or failure of a Hollywood movie?

Answer: The researchers claim that these prediction results are better than any reported in the published literature for this problem domain. Fusion classification methods attained up to 56.07% accuracy in correctly classifying movies and 90.75% accuracy in classifying movies within one category of their actual category. The SVM classification method attained up to 55.49% accuracy in correctly classifying movies and 85.55% accuracy in classifying movies within one category of their actual category.

Diff: 3 Page Ref: 239-42

68) In lessons learned from the Target case, what legal warnings would you give another retailer using data mining for marketing?

Answer: If you look at this practice from a legal perspective, you would conclude that Target did not use any information that violates customer privacy; rather, they used transactional data that most every other retail chain is collecting and storing (and perhaps analyzing) about their customers. What was disturbing in this scenario was perhaps the targeted concept: pregnancy. There are certain events or concepts that should be off limits or treated extremely cautiously, such as terminal disease, divorce, and bankruptcy.

Diff: 2 Page Ref: 243-44

69) List four myths associated with data mining.

Answer:

- Data mining provides instant, crystal-ball-like predictions.
- Data mining is not yet viable for business applications.
- Data mining requires a separate, dedicated database.
- Only those with advanced degrees can do data mining.
- Data mining is only for large firms that have lots of customer data.

Diff: 2 Page Ref: 244-45

70) List six common data mining mistakes.

Answer:

- Selecting the wrong problem for data mining
- Ignoring what your sponsor thinks data mining is and what it really can and cannot do
- Leaving insufficient time for data preparation
- Looking only at aggregated results and not at individual records
- Being sloppy about keeping track of the data mining procedure and results
- Ignoring suspicious findings and quickly moving on
- Running mining algorithms repeatedly and blindly
- Believing everything you are told about the data
- Believing everything you are told about your own data mining analysis
- Measuring your results differently from the way your sponsor measures them

Diff: 2 Page Ref: 244-46

***Analytics, Data Science, & Artificial Intelligence, 11e (Sharda)***  
**Chapter 5 Machine-Learning Techniques for Predictive Analytics**

1) In the opening vignette, the high accuracy of the models in predicting the outcomes of complex medical procedures showed that data mining tools are ready to replace experts in the medical field.

Answer: FALSE

Diff: 2 Page Ref: 255

2) Neural networks represent a brain metaphor for information processing. These models are biologically inspired rather than an exact replica of how the brain actually functions.

Answer: TRUE

Diff: 2 Page Ref: 255

3) The use of hidden layers and new topologies and algorithms renewed waning interest in neural networks.

Answer: TRUE

Diff: 2 Page Ref: 256

4) Compared to the human brain, artificial neural networks have many more neurons.

Answer: FALSE

Diff: 2 Page Ref: 258

5) In the mining industry case study, the input to the neural network is a verbal description of a hanging rock on the mine wall.

Answer: FALSE

Diff: 2 Page Ref: 258

6) In supervised learning techniques, such as backpropagation, the training data consist of vector pairs—an input vector and a target vector.

Answer: TRUE

Diff: 1 Page Ref: 260

7) A disadvantage of Hopfield neural networks is that their structure cannot be replicated on an electronic circuit board.

Answer: FALSE

Diff: 2 Page Ref: 261

8) The most complex problems solved by neural networks require one or more hidden layers for increased accuracy.

Answer: TRUE

Diff: 1 Page Ref: 259

9) Naïve Bayes is a simple probability-based classification method derived from the Bayes theorem.

Answer: TRUE

Diff: 2 Page Ref: 278

10) The strong assumption of independence among the input variables in the Naïve Bayes method is realistic.

Answer: FALSE

Diff: 2 Page Ref: 278

11) The Naïve Bayes method is a powerful tool for representing dependency structure in a graphical, explicit, and intuitive way.

Answer: FALSE

Diff: 2 Page Ref: 287

12) Pearl won the prestigious ACM's A.M. Turing Award for his contributions to the field of artificial intelligence and the development of BN.

Answer: TRUE

Diff: 1 Page Ref: 287

13) Generally speaking, support vector machines are less accurate a prediction method than other approaches such as decision trees and neural networks.

Answer: FALSE

Diff: 2 Page Ref: 263

14) Unlike other "black box" predictive models, support vector machines have a solid mathematical foundation in statistical learning theory.

Answer: TRUE

Diff: 2 Page Ref: 263

15) Model ensembles tend to be more robust against outliers and noise in the data set than individual models.

Answer: TRUE

Diff: 3 Page Ref: 303

16) Using support vector machines, you must normalize the data before you numericize it.

Answer: FALSE

Diff: 2 Page Ref: 272

17) The  $k$ -nearest neighbor algorithm is overly complex when compared to artificial neural networks and support vector machines.

Answer: FALSE

Diff: 2 Page Ref: 274

18) The  $k$ -nearest neighbor algorithm appears well-suited to solving image recognition and categorization problems.

Answer: TRUE

Diff: 2 Page Ref: 277

19) Because of their complexity, it is more difficult to understand the inner structure of model ensembles (how they do what they do) than individual models.

Answer: TRUE

Diff: 2 Page Ref: 303

20) Ensemble models can be quickly characterized based on their use of a bagging or boosting method type.

Answer: FALSE

Diff: 3 Page Ref: 296

21) In the opening vignette, predictive modeling is described as:

- A) estimating the future using the past.
- B) not yet accepted in the business world.
- C) the least practiced branch of data mining.
- D) unable to handle complex predictive problems.

Answer: A

Diff: 3 Page Ref: 255

22) In the opening vignette, which method was the best in both accuracy of predicted outcomes and sensitivity?

- A) ANN
- B) CART
- C) C5
- D) SVM

Answer: D

Diff: 3 Page Ref: 254

23) Neural networks have been described as "biologically inspired." What does this mean?

- A) They are faithful to the entire process of computation in the human brain.
- B) They were created to look identical to human brains.
- C) They crudely model the biological makeup of the human brain.
- D) They have the power to undertake every task the human brain can.

Answer: C

Diff: 2 Page Ref: 256

24) Which element in an artificial neural network roughly corresponds to a synapse in a human brain?

- A) node
- B) input
- C) output
- D) weight

Answer: D

Diff: 2 Page Ref: 257

25) Which element in an artificial neural network roughly corresponds to a dendrite in a human brain?

- A) node
- B) input
- C) output
- D) weight

Answer: B

Diff: 2 Page Ref: 257

26) Which of the following are advantages of the Naïve Bayes method or classification?

- A) developed very efficiently
- B) developed effectively and accurately in a supervised machine learning environment
- C) absent any underlying assumptions that may affect output
- D) ability to quickly create models and outputs

Answer: C

Diff: 3 Page Ref: 278-9

27) Some of the benefits of the BN model include:

- A) ease of adaptability.
- B) extent of applicability.
- C) both A and B.
- D) none of these.

Answer: C

Diff: 2 Page Ref: 290

28) Backpropagation requires the of vector pairs, with the pairs consisting of:

- A) an input vector and a control vector.
- B) binary input vectors.
- C) a control vector and a target vector.
- D) an input vector and a target vector.

Answer: D

Diff: 3 Page Ref: 260

29) Why is sensitivity analysis frequently used for artificial neural networks?

- A) because it is required by all major artificial neural networks
- B) because it is generally informative, and can be used to identify a preferred model if multiple models exist
- C) because it is generally informative, although it cannot help to identify cause-and-effect relationships among variables
- D) because it provides a complete description of the inner workings of the artificial neural network

Answer: B

Diff: 2 Page Ref: 267

- 30) Support vector machines are a popular machine learning technique primarily because of:
- A) their relative cost and superior predictive power.
  - B) their superior predictive power and their theoretical foundation.
  - C) their relative cost and relative ease of use.
  - D) their high effectiveness in the very few areas where they can be used.

Answer: B

Diff: 3 Page Ref: 263

- 31) Homogeneous-type ensembles combine the outcomes of:

- A) two or more of the different type of models.
- B) only two of the different type of models.
- C) two or more of the same type of models.
- D) only two of the same type of models.

Answer: C

Diff: 2 Page Ref: 296

- 32) Bagging can be used for:

- A) classification-type prediction problems.
- B) regression/estimation-type prediction problems.
- C) both A and B
- D) none of these

Answer: C

Diff: 2 Page Ref: 297

- 33) When using support vector machines, in which stage do you transform the data?

- A) preprocessing the data
- B) developing the model
- C) experimentation
- D) deploying the model

Answer: A

Diff: 2 Page Ref: 284

- 34) When using support vector machines, in which stage do you select the kernel type (e.g., RBF, Sigmoid)?

- A) preprocessing the data
- B) developing the model
- C) experimentation
- D) deploying the model

Answer: B

Diff: 2 Page Ref: 264

35) For how long do SVM models continue to be accurate and actionable?

- A) for as long as the developers stay with the firm
- B) for as long as management support continues to exist for the project
- C) for as long as you choose to use them
- D) for as long as the behavior of the domain stays the same

Answer: D

Diff: 2 Page Ref: 273

36) All of the following are disadvantages/limitations of the SVM technique EXCEPT:

- A) model building involves complex and time-demanding calculations.
- B) selection of the kernel type and kernel function parameters is difficult.
- C) they have high algorithmic complexity and extensive memory requirements for complex tasks.
- D) their accuracy is poor in many domains compared to neural networks.

Answer: D

Diff: 3 Page Ref: 273

37) The  $k$ -nearest neighbor machine learning algorithm ( $k$ NN) is:

- A) highly mathematical and computationally intensive.
- B) a method that has little in common with regression.
- C) regarded as a "lazy" learning method.
- D) very complex in its inner workings.

Answer: C

Diff: 2 Page Ref: 274

38) Using the  $k$ -nearest neighbor machine learning algorithm for classification, larger values of  $k$ :

- A) sharpen the distinction between classes.
- B) reduce the effect of noise on the classification.
- C) increase the effect of noise on the classification.
- D) do not change the effect of noise on the classification.

Answer: B

Diff: 2 Page Ref: 275

39) What is a major drawback to the basic majority voting classification in kNN?

- A) It requires frequent human subjective input during computation.
- B) Classes that are more clustered tend to dominate prediction.
- C) Even the naive version of the algorithm is hard to implement.
- D) Classes with more frequent examples tend to dominate prediction.

Answer: D

Diff: 3 Page Ref: 276

40) The random forest (RF) model is a modification to what algorithm?

- A) complex bagging
- B) simple bagging
- C) complex boosting
- D) simple boosting

Answer: B

Diff: 3 Page Ref: 299

41) The opening vignette teaches us that \_\_\_\_\_ medicine is a relatively new term coined in the healthcare arena, where the main idea is to dig deep into past experiences to discover new and useful knowledge to improve medical and managerial procedures in healthcare.

Answer: evidence-based

Diff: 2 Page Ref: 255

42) Neural computing refers to a \_\_\_\_\_ methodology for machine learning.

Answer: pattern-recognition

Diff: 2 Page Ref: 255

43) A thorough analysis of an early neural network model called the \_\_\_\_\_, which used no hidden layer, in addition to a negative evaluation of the research potential by Minsky and Papert in 1969, led to a diminished interest in neural networks.

Answer: perceptron

Diff: 2 Page Ref: 256

44) The human brain is composed of special cells called \_\_\_\_\_.

Answer: neurons

Diff: 1 Page Ref: 256

45) In a typical network structure of an ANN consisting of three layers—input, intermediate, and output—the intermediate layer is called the \_\_\_\_\_ layer.

Answer: hidden

Diff: 2 Page Ref: 259

46) In an ANN, \_\_\_\_\_ express the relative strength (or mathematical value) of the input data or the many connections that transfer data from layer to layer.

Answer: connection weights

Diff: 2 Page Ref: 258

47) Kohonen's \_\_\_\_\_ feature map provides a way to represent multidimensional data in much lower dimensional spaces, usually one or two dimensions.

Answer: self-organizing

Diff: 2 Page Ref: 259

48) In the power generators case study, data mining–driven software tools, including data-driven \_\_\_\_\_ technologies with historical data, helped an energy company reduce emissions of NOx and CO.

Answer: predictive modeling

Diff: 3 Page Ref: 260

49) BN is a powerful tool for representing dependency structure in a \_\_\_\_\_, explicit, and intuitive way.

Answer: graphical

Diff: 1 Page Ref: 287

50) Backpropagation is an example of a \_\_\_\_\_ learning algorithm in neural computing.

Answer: supervised

Diff: 2 Page Ref: 260

51) \_\_\_\_\_ has proved the most popular of the techniques proposed for shedding light into the "black-box" characterization of trained neural networks.

Answer: Sensitivity analysis

Diff: 2 Page Ref: 303

52) The methodology employed in the traffic case follows a very well-known standardized analytics process know by its acronym \_\_\_\_\_.

Answer: binary CRISP-DM

Diff: 3 Page Ref: 265

53) \_\_\_\_\_ are of particular interest to modeling highly nonlinear, complex problems, systems, and processes and use hyperplanes to separate output classes in training data.

Answer: Support vector machines (SVMs)

Diff: 2 Page Ref: 264

54) Model ensembles tend to be more \_\_\_\_\_ against outliers and noise in the data set than individual models.

Answer: robust

Diff: 2 Page Ref: 303

55) In the mathematical formulation of SVM's, the normalization and/or scaling are important steps to guard against variables/attributes with \_\_\_\_\_ that might otherwise dominate the classification formulae.

Answer: larger variance

Diff: 3 Page Ref: 269

56) Writing the SVM classification rule in its dual form reveals that classification is only a function of the \_\_\_\_\_, i.e., the training data that lie on the margin.

Answer: support vectors

Diff: 3 Page Ref: 269

57) In machine learning, the \_\_\_\_\_ is a method for converting a linear classifier algorithm into a nonlinear one by using a nonlinear function to map the original observations into a higher-dimensional space.

Answer: kernel trick

Diff: 2 Page Ref: 271

58) Due largely to their better classification results, support vector machines (SVMs) have recently become a popular technique for \_\_\_\_\_-type problems.

Answer: classification

Diff: 2 Page Ref: 273

59) Historically, the development of ANNs followed a heuristic path, with applications and extensive experimentation preceding theory. In contrast to ANNs, the development of SVMs involved sound \_\_\_\_\_ theory first, then implementation and experiments.

Answer: statistical learning

Diff: 2 Page Ref: 273

60) In the process of image recognition (or categorization), images are first transformed into a multidimensional \_\_\_\_\_ and then, using machine-learning techniques, are categorized into a finite number of classes.

Answer: feature space

Diff: 3 Page Ref: 277

61) Why are support vector machines a popular machine-learning technique?

Answer: Support vector machines provide a superior predictive power and useful theoretical foundation. SVM are among the supervised learning techniques that produce input-output functions from a set of labeled training data.

Diff: 1 Page Ref: 263

62) Why have neural networks shown much promise in many forecasting and business classification applications?

Answer: Because of their ability to "learn" from the data, their nonparametric nature (i.e., no rigid assumptions), and their ability to generalize.

Diff: 2 Page Ref: 255

63) What does the Kohonen's self- organizing feature map allow to be represented?

Answer: Kohonen's self-organizing feature map provides a way to represent multidimensional data in much lower dimensional spaces, usually one or two dimensions.

Diff: 2 Page Ref: 259

64) How is a general Hopfield network represented architecturally?

Answer: Architecturally, a general Hopfield network is represented as a single large layer of neurons with total interconnectivity; that is, each neuron is connected to every other neuron within the network.

Diff: 3 Page Ref: 261

65) Describe the Tree Augmented Naïve (TAN) Bayes method.

Answer: The TAN method is an updated version of the Naïve Bayes classifier that uses tree structure to approximate the interactions between predictor variables and the target variable. In the TAN model structure, class variable has no parent, and each and every predictor variable has the class variable as its parent along with at most one other predictor variable (i.e., attribute).

Thus, an arc between two variables indicates a directional and causal relationship between them.

Diff: 3 Page Ref: 289-290

66) Describe the taxonomy for model ensembles.

Answer: Model ensembles can be classified into four groups in two dimensions: homogeneous or heterogeneous types and bagging or boosting.

Diff: 3 Page Ref: 295-6

67) List the pros and cons of model ensembles compared to individual models.

Answer: Pros:

- Accuracy
- Robustness
- Reliability
- Coverage

Cons:

- Complexity
- Computationally expensive
- Lack of transparency
- Harder to deploy

Diff: 2 Page Ref: 303

68) In 1992, Boser, Guyon, and Vapnik suggested a way to create nonlinear classifiers by applying the kernel trick to maximum-margin hyperplanes. How does the resulting algorithm differ from the original optimal hyperplane algorithm proposed by Vladimir Vapnik in 1963?

Answer: The resulting algorithm is formally similar, except that every dot product is replaced by a nonlinear kernel function. This allows the algorithm to fit the maximum-margin hyperplane in the transformed feature space. The transformation may be nonlinear and the transformed space high dimensional; thus, though the classifier is a hyperplane in the high-dimensional feature space it may be nonlinear in the original input space.

Diff: 3 Page Ref: 270

69) What are the three steps in the process-based approach to the use of support vector machines (SVMs)?

Answer:

1. Numericizing the data
2. Normalizing the data
3. Selecting the kernel type and kernel parameters

Diff: 2 Page Ref: 272

70) Describe the  $k$ -nearest neighbor ( $k$ NN) data mining algorithm.

Answer:  $k$ -NN is a prediction method for classification-as well as regression-type prediction problems.  $k$ -NN is a type of instance-based learning (or lazy learning) where the function is only approximated locally and all computations are deferred until the actual prediction.

Diff: 2    Page Ref: 274

1) In the opening vignette, banks had begun to use deep learning to provide more accurate recognition of fraud.

Answer: TRUE

Diff: 2 Page Ref: 317

2) Deep learning is a separate branch of science from AI.

Answer: FALSE

Diff: 2 Page Ref: 320

3) Structured, human-mediated machine-learning approaches have been working fine for rather abstract and formal tasks.

Answer: TRUE

Diff: 2 Page Ref: 320

4) The initial idea for deep learning began in 2013.

Answer: FALSE

Diff: 2 Page Ref: 321

5) Neurons are processing units that perform a set of predefined mathematical operations on the numerical values coming from the input variables or from the other neuron outputs to create and push out its own outputs.

Answer: TRUE

Diff: 2 Page Ref: 325

6) In artificial neurons weight terms are adjustable but biased terms are fixed.

Answer: FALSE

Diff: 1 Page Ref: 325

7) The task undertaken by a neural network does not affect the architecture of the neural network; in other words, architectures are problem-independent.

Answer: FALSE

Diff: 2 Page Ref: 335

8) Neural network training is usually done by defining a performance function.

Answer: TRUE

Diff: 2 Page Ref: 335

9) Deep neural networks are referred to as "deep" because they are primarily used to evaluate significant philosophical issues.

Answer: FALSE

Diff: 2 Page Ref: 343

10) The growth in the use of deep neural networks has been spurred by advancements in GPU hardware technology.

Answer: TRUE

Diff: 2 Page Ref: 343

11) Feedforward models only allow a single feedback connection.

Answer: FALSE

Diff: 2 Page Ref: 343

12) Neural networks are called "black boxes" due to the lack of ability to explain their reasoning.

Answer: TRUE

Diff: 2 Page Ref: 340

13) CNNs are only applicable to image data sets.

Answer: FALSE

Diff: 2 Page Ref: 349

14) ANN are capable of solving complex problems and provide detailed explanations of their capabilities.

Answer: FALSE

Diff: 2 Page Ref: 340

15) Convolution layers are often followed by a pooling layer.

Answer: TRUE

Diff: 3 Page Ref: 349

16) Deep MLP and convolutional networks are specialized for processing a sequential grid of values.

Answer: FALSE

Diff: 2 Page Ref: 360

17) RNN basically models a dynamic system.

Answer: TRUE

Diff: 2 Page Ref: 360

18) Compute Unified Device Architecture (CUDA), was designed by ATI.

Answer: FALSE

Diff: 2 Page Ref: 368

19) In Caffe, everything is done using text files instead of code.

Answer: TRUE

Diff: 2 Page Ref: 368

20) Theano is a Java library developed by the Deep Learning Group at the University of Montreal.

Answer: FALSE

Diff: 3 Page Ref: 369

- 21) In the opening vignette, the results did not include:
- A) elimination of fraud completely at 15% of branches.
  - B) reduction in false positives by 60%.
  - C) increase in true positives by 50%.
  - D) resources focused on actual cases of fraud.

Answer: A

Diff: 3 Page Ref: 317

- 22) What factors are not allowing banks to use more advanced AI based fraud detection systems?
- A) evolving new learning systems enabled by AI
  - B) hardware and processors becoming more powerful
  - C) specialized algorithms becoming available
  - D) easy access to development capital

Answer: D

Diff: 3 Page Ref: 317

- 23) Which type of learning system is represented by the following process: input - manually created representation - output?
- A) knowledge-based systems
  - B) classic machine learning
  - C) generic representation learning
  - D) deep learning

Answer: A

Diff: 2 Page Ref: 322

- 24) Which type of learning system is represented by the following process: input - simple features - more advanced features - mapping from features - output?
- A) knowledge-based systems
  - B) classic machine learning.
  - C) generic representation learning
  - D) deep learning

Answer: D

Diff: 2 Page Ref: 322

- 25) Which type of a and a transfer function is described: operation increases in a line based on condition using an operation such as  $a=n$ .

- A) hard limit
- B) linear
- C) log sigmoid
- D) positive linear

Answer: B

Diff: 2 Page Ref: 326

26) Which type of a and a transfer function is described: operation increases in a line based on condition, but only after a minimum is met using an operation such as  $a=n$  if  $n>0$ , or  $a=0$  if  $n<0$ .

- A) hard limit
- B) linear
- C) log sigmoid
- D) positive linear

Answer: D

Diff: 2 Page Ref: 326

27) In developing an artificial neural network, all of the following are important reasons to pre-select the network architecture and learning method EXCEPT:

- A) some configurations have better success than others with specific problems.
- B) development personnel may be more experienced with certain architectures.
- C) most neural networks need special purpose hardware, which may be absent.
- D) some neural network software may not be available in the organization.

Answer: C

Diff: 2 Page Ref: 335

28) Backpropagation learning algorithms for neural networks are:

- A) the least popular algorithm due to their inaccuracy.
- B) used without hidden layers for effectiveness.
- C) used without a training set of data.
- D) required to have error tolerance set in advance.

Answer: D

Diff: 3 Page Ref: 337

29) Sensitivity analysis is a method for extracting the what among the inputs and the outputs of a trained neural network model?

- A) underlying constraints
- B) cause-and-effect relationships
- C) bias
- D) detailed quantitative predictive models

Answer: B

Diff: 2 Page Ref: 340

30) GPU hardware is often used for deep neural networks. What does GPU stand for?

- A) game processing unit
- B) graphics processing unit
- C) gated power unit
- D) gated processing utilizer

Answer: B

Diff: 3 Page Ref: 343

31) Which of the following does not describe a deep feedforward network?

- A) most general type of deep network
- B) many layers of neurons
- C) network elements are significantly different than ANN models
- D) tensors are handled as input

Answer: C

Diff: 2 Page Ref: 343

32) Which type of neural network is characterized by allowing feedback connections?

- A) deep feedforward network
- B) feedforward network
- C) recurrent neural network
- D) none of these

Answer: C

Diff: 2 Page Ref: 343

33) Why is pretraining a deep MLP network appropriate?

- A) increases the chances of a global optimum being reached
- B) is necessary always necessary for this type of network
- C) increases duration before global optimum is reached
- D) none of these

Answer: A

Diff: 2 Page Ref: 344

34) What concept do CNN's use to avoid large numbers of weight parameters being defined and trained?

- A) convolutional theory
- B) parameter sharing
- C) filtering
- D) all of these

Answer: B

Diff: 2 Page Ref: 350

35) Real applications of deep learning in general and CNN's in particular highly depend on the availability of:

- A) large, unsorted data sets.
- B) small, unsorted data sets.
- C) large, annotated data sets.
- D) small, annotated data sets.

Answer: C

Diff: 2 Page Ref: 353

36) Who published a weekly supervised training image recognition deep learning project in May 2018?

- A) IBM
- B) Google
- C) Adobe
- D) Facebook

Answer: D

Diff: 2 Page Ref: 355

37) LSTM networks are typically not used for what type of data?

- A) handwriting recognition
- B) speech recognition
- C) image recognition
- D) machine translation

Answer: C

Diff: 2 Page Ref: 365

38) Which deep learning framework supports TPUs?

- A) Torch
- B) Caffe
- C) TensorFlow
- D) Theano

Answer: C

Diff: 2 Page Ref: 368-9

39) Which deep learning framework adds support to the LuaJIT library?

- A) Torch
- B) Caffe
- C) TensorFlow
- D) Theano

Answer: A

Diff: 2 Page Ref: 368-9

40) Which deep learning framework is particularly known to be an efficient framework for image processing due to incredible speed in processing image files?

- A) Torch
- B) Caffe
- C) TensorFlow
- D) Theano

Answer: B

Diff: 2 Page Ref: 368-9

41) \_\_\_\_\_ learning techniques entail one type of machine learning (which is also a part of AI) in which the emphasis is on learning and discovering features by the system in addition to discovering the mapping from those features to the output/target.

Answer: Representation

Diff: 2 Page Ref: 321

42) Machine learning is a subset of \_\_\_\_\_.

Answer: artificial intelligence

Diff: 2 Page Ref: 321

43) Large \_\_\_\_\_ have greatly compensated for the lack of intimate knowledge and reduced the level of skill needed for implementing deep neural networks.

Answer: training data sets

Diff: 2 Page Ref: 322

44) As it is being practiced today, \_\_\_\_\_ seems to be nothing but an extension of neural networks with the idea that deep learning is able to deal with more complicated tasks with a higher level of sophistication.

Answer: deep learning

Diff: 1 Page Ref: 321

45) Typically, a neuron has more than \_\_\_\_\_ input.

Answer: a single

Diff: 2 Page Ref: 327

46) The \_\_\_\_\_ computes the weighted sums of all input elements entering each processing element.

Answer: summation function

Diff: 2 Page Ref: 331

47) The development process for an ANN application involves \_\_\_\_\_ steps.

Answer: nine

Diff: 1 Page Ref: 334

48) \_\_\_\_\_ is the most widely used supervised learning algorithm in neural computing.

Answer: Backpropagation

Diff: 2 Page Ref: 336

49) Deep belief networks (DBNs) is a(n) \_\_\_\_\_ pretraining deep learning methods.

Answer: unsupervised

Diff: 1 Page Ref: 344

50) Generally, a \_\_\_\_\_ order of layers has to be held between the input and the output layers in the MLP-type network architecture.

Answer: sequential

Diff: 2 Page Ref: 344

51) \_\_\_\_\_ has proved the most popular of the techniques proposed for shedding light into the "black-box" characterization of trained neural networks.

Answer: Sensitivity analysis

Diff: 2 Page Ref: 340

52) A convolution layer is followed by a pooling layer, also know them as a \_\_\_\_\_ layer.

Answer: subsampling

Diff: 3 Page Ref: 352

53) \_\_\_\_\_ has driven many deep learning-based text mining projects in a wide range of contexts.

Answer: Word2vec

Diff: 2 Page Ref: 358

54) The \_\_\_\_\_ is caused by very small derivatives of sigmoid functions in some regions of the images.

Answer: vanishing gradient problem

Diff: 2 Page Ref: 354

55) \_\_\_\_\_ uses deep learning artificial neural network algorithms (along with other AI techniques) to deliver information about the images captured by users from their nearby objects.

Answer: Google Lens

Diff: 3 Page Ref: 354

56) Human thinking and understanding to a great extent relies on \_\_\_\_\_.

Answer: context

Diff: 3 Page Ref: 360

57) \_\_\_\_\_ refers to a subfield of AI that employs computer programs to translate speech or text from one language to another.

Answer: Machine translation

Diff: 2 Page Ref: 366

58) \_\_\_\_\_ is an open-source neural network library that functions as a high-level application programming interface (API).

Answer: Keras

Diff: 2 Page Ref: 370

59) To program GPUs, the \_\_\_\_\_ language is utilized.

Answer: CUDA

Diff: 2 Page Ref: 368

60) Cognitive computing is often used interchangeably with \_\_\_\_\_, the umbrella term used for technologies that rely on data and scientific methods/computations to make (or help/support in making) decisions.

Answer: AI

Diff: 3 Page Ref: 372

61) What are the key attributes of cognitive computing systems?

Answer: Cognitive computing systems must have the following key attributes as defined by the Cognitive Computing Consortium (2018):

- Adaptive: Cognitive systems must be flexible enough to learn as information changes and goals evolve. The systems must be able to digest dynamic data in real time and make adjustments as the data and environment change.
- Interactive: Human-computer interaction (HCI) is a critical component in cognitive systems. Users must be able to interact with cognitive machines and define their needs as those needs change. The technologies must also be able to interact with other processors, devices, and cloud platforms.
- Iterative and stateful: Cognitive computing technologies can also identify problems by asking questions or pulling in additional data if a stated problem is vague or incomplete. The systems do this by maintaining information about similar situations that have previously occurred.
- Contextual: Understanding context is critical in thought processes, so cognitive systems must understand, identify, and mine contextual data, such as syntax, time, location, domain, requirements, and a specific user's profile, tasks, or goals. Cognitive systems may draw on multiple sources of information, including structured and unstructured data and visual, auditory, or sensor data.

Diff: 3 Page Ref: 372

62) How does cognitive computing differ from artificial intelligence?

Answer:

- Technologies - both technologies utilize machine learning, and LP, neural networks and deep learning; but cognitive computing adds text mining and sentiment analysis
- Capabilities offered - while AI seeks to find hidden patterns in data sources, cognitive computing attempts to simulate the human thought process to find solutions
- Purpose - AI seeks to automate complex processes whereas cognitive computing seeks to augment human capability
- Industries - both have application in most industries, but the focus of cognitive computing is currently in customer service, marketing, healthcare, entertainment and services

Diff: 2 Page Ref: 373

63) Describe the framework of DeepQA used by IBM's Watson.

Answer:

- Massive parallelism. Watson needed to exploit massive parallelism in the consideration of multiple interpretations and hypotheses.
- Many experts. Watson needed to be able to integrate, apply, and contextually evaluate a wide range of loosely coupled probabilistic questions and content analytics.
- Pervasive confidence estimation. No component of Watson committed to an answer; all components produced features and associated confidences, scoring different question and content interpretations. An underlying confidence-processing substrate learned how to stack and combine the scores.
- Integration of shallow and deep knowledge. Watson needed to balance the use of strict semantics and shallow semantics, leveraging many loosely formed ontologies.

Diff: 2 Page Ref: 377

64) Create a diagram that describes how deep learning is aligned with representation learning, machine learning and artificial intelligence.

Answer: Student drawings will vary but will closely resemble figure 6.3

Diff: 3 Page Ref: 321

65) Describe the nine steps in the development process for an ANN application.

Answer:

1. Collect, organize, and format the data
2. Separate data into training, validation, and testing sets
3. Decide on a network architecture and structure
4. Select a learning algorithm
5. Set network parameters and initialize their values
6. Initialize weights and start training (and validation)
7. Stop training, freeze the network weights
8. Test the trained network
9. Deploy the network for use on unknown new cases

Diff: 3 Page Ref: 334-5

66) What are the five steps in the backpropagation learning algorithm?

Answer:

1. Initialize weights with random values and set other parameters.
2. Read in the input vector and the desired output.
3. Compute the actual output via the calculations, working forward through the layers.
4. Compute the error.
5. Change the weights by working backward from the output layer through the hidden layers.

Diff: 3 Page Ref: 337

67) Define the term sensitivity analysis as it relates to ANNs.

Answer: Sensitivity analysis is a method for extracting the cause-and-effect relationships among the inputs and the outputs of a trained neural network model.

Diff: 2 Page Ref: 340

68) Describe an MLP deep network. Why are these labeled as feedforward networks?

Answer: MLP deep networks, also known as deep feedforward networks, are the most general type of deep networks. These networks are simply large-scale neural networks that can contain many layers of neurons and handle tensors as their input. The types and characteristics of the network elements (i.e., weight functions, transfer functions) are pretty much the same as in the standard ANN models. These models are called feedforward because the flow of information that goes through them is always forwarding and no feedback connections (i.e., connections in which outputs of a model are fed back to itself) are allowed.

Diff: 3 Page Ref: 344

69) Select and discuss a computer framework for implementing deep learning. Make sure to discuss its origin hardware targets and popular implementations.

Answer: Student selections will vary.

Diff: 2 Page Ref: 368-370

70) What is Keras, and how is it different from the other frameworks?

Answer: Keras (<https://keras.io/>) is an open-source neural network library written in Python that functions as a high-level application programming interface (API) and is able to run on top of various deep learning frameworks including Theano and TensorFlow. In essence, Keras just by getting the key properties of network building blocks (i.e., type of layers, transfer functions, and optimizers) via an extremely simple syntax automatically generates syntax in one of the deep learning frameworks and runs that framework in the backend.

Diff: 2 Page Ref: 370

***Analytics, Data Science, & Artificial Intelligence, 11e (Sharda)***  
**Chapter 7 Text Mining, Sentiment Analysis, and Social Analytics**

- 1) In the chapter's opening vignette, Amadori sought to better understand and market its food products effectively to customers of its food products.

Answer: TRUE

Diff: 2 Page Ref: 389-91

- 2) Text analytics is the subset of text mining that handles information retrieval and extraction, plus data mining.

Answer: FALSE

Diff: 2 Page Ref: 392

- 3) In text mining, inputs to the process include unstructured data such as Word documents, PDF files, text excerpts, e-mail and XML files.

Answer: TRUE

Diff: 2 Page Ref: 393

- 4) During information extraction, entity recognition (the recognition of names of people and organizations) takes place after relationship extraction.

Answer: FALSE

Diff: 2 Page Ref: 406

- 5) The overarching goal for both text analytics and text mining is to turn unstructured textual data into actionable information through the application of natural language processing (NLP) and analytics.

Answer: TRUE

Diff: 2 Page Ref: 392

- 6) Articles and auxiliary verbs are assigned little value in text mining and are usually filtered out.

Answer: TRUE

Diff: 2 Page Ref: 394

- 7) Web mining is exactly the same as Web analytics: the analysis of Web site usage data.

Answer: FALSE

Diff: 2 Page Ref: 430

- 8) The bag-of-words model is appropriate for spam detection but not for text analytics.

Answer: TRUE

Diff: 2 Page Ref: 397-99

- 9) Chinese, Japanese, and Thai have features that make them more difficult candidates for natural language processing.

Answer: TRUE

Diff: 2 Page Ref: 398

10) Regional accents present challenges for natural language processing.

Answer: TRUE

Diff: 2 Page Ref: 399

11) Web crawlers or spiders collect information from Web pages in an automated or semi-automated way. Only the text of Web pages is collected by crawlers.

Answer: FALSE

Diff: 2 Page Ref: 434

12) Detecting lies from text transcripts of conversations is a future goal of text mining as current systems achieve only 50% accuracy of detection.

Answer: FALSE

Diff: 2 Page Ref: 404-5

13) With the PageRank algorithm, a Web page with more incoming links will always rank higher than one with fewer incoming links.

Answer: FALSE

Diff: 3 Page Ref: 436

14) In text mining, creating the term-by-document matrix includes all the terms that are included in all documents, making for huge matrices only manageable on computers.

Answer: FALSE

Diff: 2 Page Ref: 41

15) In text mining, if an association between two concepts has 7% support, it means that 7% of the documents had both concepts represented in the same document.

Answer: TRUE

Diff: 2 Page Ref: 414

16) In sentiment analysis, sentiment suggests a transient, temporary opinion reflective of one's feelings.

Answer: FALSE

Diff: 2 Page Ref: 418

17) Current use of sentiment analysis in voice of the customer applications allows companies to change their products or services in real time in response to customer sentiment.

Answer: TRUE

Diff: 2 Page Ref: 422

18) In sentiment analysis, it is hard to classify some subjects such as news as good or bad, but easier to classify others, e.g., movie reviews, in the same way.

Answer: TRUE

Diff: 2 Page Ref: 424

19) Natural language processing (NLP) is an important component of text mining and is a subfield of computational linguistics but not artificial intelligence.

Answer: FALSE

Diff: 2 Page Ref: 398

20) Search engine optimization (SEO) techniques play a minor role in a Web site's search ranking because only well-written content matters.

Answer: FALSE

Diff: 2 Page Ref: 437

21) Because of the sheer size of the Web, it is not feasible to set up a data warehouse to replicate, store, and integrate all of the data on the Web.

Answer: TRUE

Diff: 2 Page Ref: 429

22) According to a study by Merrill Lynch and Gartner, what percentage of all corporate data is captured and stored in some sort of unstructured form?

- A) 15%
- B) 75%
- C) 25%
- D) 85%

Answer: D

Diff: 2 Page Ref: 392

23) Which of these applications will derive the LEAST benefit from text mining?

- A) patients' medical files
- B) patent description files
- C) sales transaction files
- D) customer comment files

Answer: C

Diff: 3 Page Ref: 393

24) In text mining, stemming is the process of:

- A) categorizing a block of text in a sentence.
- B) reducing multiple words to their base or root.
- C) transforming the term-by-document matrix to a manageable size.
- D) creating new branches or stems of recorded paragraphs.

Answer: B

Diff: 2 Page Ref: 394

25) In text mining, tokenizing is the process of:

- A) categorizing a block of text in a sentence.
- B) reducing multiple words to their base or root.
- C) transforming the term-by-document matrix to a manageable size.
- D) creating new branches or stems of recorded paragraphs.

Answer: A

Diff: 2 Page Ref: 395

- 26) All of the following are challenges associated with natural language processing EXCEPT:
- A) dividing up a text into individual words in English.
  - B) understanding the context in which something is said.
  - C) distinguishing between words that have more than one meaning.
  - D) recognizing typographical or grammatical errors in texts.

Answer: A

Diff: 3 Page Ref: 398-99

- 27) What application is MOST dependent on text analysis of transcribed sales call center notes and voice conversations with customers?

- A) finance
- B) OLAP
- C) CRM
- D) ERP

Answer: C

Diff: 3 Page Ref: 399

- 28) What does Web content mining involve?

- A) analyzing the universal resource locator in Web pages
- B) analyzing the unstructured content of Web pages
- C) analyzing the pattern of visits to a Web site
- D) analyzing the PageRank and other metadata of a Web page

Answer: B

Diff: 2 Page Ref: 431

- 29) What does Web structure mining involve?

- A) analyzing the universal resource locators in Web pages
- B) analyzing the unstructured content of Web pages
- C) analyzing the pattern of visits to a Web site
- D) analyzing the PageRank and other metadata of a Web page

Answer: A

Diff: 2 Page Ref: 431

- 30) In the research literature case study, the researchers analyzing academic articles extracted information from which source?

- A) the article abstract
- B) the article keywords
- C) the main body of the paper
- D) the paper references

Answer: A

Diff: 1 Page Ref: 415-16

31) Search engines do not search the entire Web every time a user makes a search request, for all the following reasons EXCEPT:

- A) the Web is too complex to be searched each time.
- B) it would take longer than the user could wait.
- C) most users are not interested in searching the entire Web.
- D) it is more efficient to use pre-stored search results.

Answer: C

Diff: 3 Page Ref: 433

32) Breaking up a Web page into its components to identify worthy words/terms and indexing them using a set of rules is called:

- A) preprocessing the documents.
- B) document analysis.
- C) creating the term-by-document matrix.
- D) parsing the documents.

Answer: D

Diff: 3 Page Ref: 435

33) PageRank for Webpages is useful to Web developers for which of the following reasons?

- A) It gives developers insight into Web user behavior.
- B) It is used in citation analysis for scholarly papers.
- C) Developing many Web pages with low PageRank can help a Web site attract users.
- D) They uniquely identify the Web page developer for greater accountability.

Answer: A

Diff: 3 Page Ref: 436

34) What do voice of the market (VOM) applications of sentiment analysis do?

- A) They examine customer sentiment at the aggregate level.
- B) They examine employee sentiment in the organization.
- C) They examine the stock market for trends.
- D) They examine the "market of ideas" in politics.

Answer: A

Diff: 3 Page Ref: 423

35) How is objectivity handled in sentiment analysis?

- A) It is ignored because it does not appear in customer sentiment.
- B) It is incorporated as a type of sentiment.
- C) It is clarified with the customer who expressed it.
- D) It is identified and removed as facts are not sentiment.

Answer: D

Diff: 3 Page Ref: 424

- 36) Search engine optimization (SEO) is a means by which:
- A) Web site developers can negotiate better deals for paid ads.
  - B) Web site developers can increase Web site search rankings.
  - C) Web site developers index their Web sites for search engines.
  - D) Web site developers optimize the artistic features of their Web sites.

Answer: B

Diff: 2 Page Ref: 436-37

- 37) In text analysis, what is a lexicon?
- A) a catalog of words, their synonyms, and their meanings
  - B) a catalog of customers, their words, and phrase
  - C) a catalog of letters, words, phrases and sentences
  - D) a catalog of customers, products, words, and phrase

Answer: A

Diff: 3 Page Ref: 426

- 38) Clickstream analysis is most likely to be used for all the following types of applications EXCEPT:

- A) determining the lifetime value of clients.
- B) hiring new functional area managers.
- C) designing cross-marketing strategies across products.
- D) predicting user behavior.

Answer: B

Diff: 2 Page Ref: 441

- 39) What are the two main types of Web analytics?
- A) old-school and new-school Web analytics
  - B) Bing and Google Web analytics
  - C) off-site and on-site Web analytics
  - D) data-based and subjective Web analytics

Answer: C

Diff: 3 Page Ref: 441

- 40) Web site usability may be rated poor if:

- A) the average number of page views on your Web site is large.
- B) the time spent on your Web site is long.
- C) Web site visitors download few of your offered PDFs and videos.
- D) users fail to click on all pages equally.

Answer: C

Diff: 2 Page Ref: 442

- 41) The \_\_\_\_\_ is perhaps the world's largest data and text repository, and the amount of information on it is growing rapidly.

Answer: Web

Diff: 1 Page Ref: 429

42) Web pages contain both unstructured information and \_\_\_\_\_, which are connections to other Web pages.

Answer: hyperlinks

Diff: 1 Page Ref: 432

43) \_\_\_\_\_, also called homonyms, are syntactically identical words with different meanings.

Answer: Polysemes

Diff: 2 Page Ref: 394

44) Web \_\_\_\_\_ are used to automatically read through the contents of Web sites.

Answer: crawlers/spiders

Diff: 1 Page Ref: 431

45) \_\_\_\_\_ is a technique used to detect favorable and unfavorable opinions toward specific products and services using large numbers of textual data sources.

Answer: Sentiment analysis

Diff: 2 Page Ref: 399

46) In the text mining system developed by Ghani et al., treating products as sets of \_\_\_\_\_ rather than as atomic entities can potentially boost the effectiveness of many business applications.

Answer: attribute-value pairs

Diff: 3 Page Ref: 403

47) In the Mining for Lies case study, a text-based deception-detection method used by Fuller and others in 2008 was based on a process known as \_\_\_\_\_, which relies on elements of data and text mining techniques.

Answer: message-feature mining

Diff: 2 Page Ref: 404-6

48) At a very high level, the text mining process can be broken down into three consecutive tasks, the first of which is to establish the \_\_\_\_\_.

Answer: Corpus

Diff: 2 Page Ref: 411

49) Because the term-document matrix is often very large and rather sparse, an important optimization step is to reduce the \_\_\_\_\_ of the matrix.

Answer: dimensionality

Diff: 2 Page Ref: 412

50) Where \_\_\_\_\_ appears in text, it comes in two flavors: explicit, where the subjective sentence directly expresses an opinion, and implicit, where the text implies an opinion.

Answer: sentiment

Diff: 2 Page Ref: 418-19

51) \_\_\_\_\_ is mostly driven by sentiment analysis and is a key element of customer experience management initiatives, where the goal is to create an intimate relationship with the customer.

Answer: Voice of the customer (VOC)

Diff: 2 Page Ref: 422-23

52) \_\_\_\_\_ focuses on listening to social media where anyone can post opinions that can damage or boost your reputation.

Answer: Brand management

Diff: 2 Page Ref: 423

53) Web \_\_\_\_\_ involves discovering relationships from Web pages.

Answer: mining

Diff: 2 Page Ref: 430

54) When identifying the polarity of text, the most granular level for polarity identification is at the \_\_\_\_\_ level.

Answer: word

Diff: 1 Page Ref: 426

55) When viewed as a binary feature, \_\_\_\_\_ classification is the binary classification task of labeling an opinionated document as expressing either an overall positive or an overall negative opinion.

Answer: polarity

Diff: 2 Page Ref: 424

56) When labeling each term in the WordNet lexical database, the group of cognitive synonyms (or synset) to which this term belongs is classified using a set of \_\_\_\_\_, each of which is capable of deciding whether the synset is Positive, or Negative, or Objective.

Answer: ternary classifiers

Diff: 3 Page Ref: 426

57) A(n) \_\_\_\_\_ is one or more Web pages that provide a collection of links to authoritative Web pages.

Answer: hub

Diff: 1 Page Ref: 432

58) A(n) \_\_\_\_\_ engine is a software program that searches for Web sites or files based on keywords.

Answer: search

Diff: 1 Page Ref: 433

59) \_\_\_\_\_ is far and away the most popular search engine.

Answer: Google

Diff: 2 Page Ref: 433

60) \_\_\_\_\_ Web analytics refers to measurement and analysis of data relating to your company that takes place outside your Web site.

Answer: Off-site

Diff: 1 Page Ref: 441

61) In what ways does the Web pose great challenges for effective and efficient knowledge discovery through data mining?

Answer:

- **The Web is too big for effective data mining.** The Web is so large and growing so rapidly that it is difficult to even quantify its size. Because of the sheer size of the Web, it is not feasible to set up a data warehouse to replicate, store, and integrate all of the data on the Web, making data collection and integration a challenge.
- **The Web is too complex.** The complexity of a Web page is far greater than a page in a traditional text document collection. Web pages lack a unified structure. They contain far more authoring style and content variation than any set of books, articles, or other traditional text-based document.
- **The Web is too dynamic.** The Web is a highly dynamic information source. Not only does the Web grow rapidly, but its content is constantly being updated. Blogs, news stories, stock market results, weather reports, sports scores, prices, company advertisements, and numerous other types of information are updated regularly on the Web.
- **The Web is not specific to a domain.** The Web serves a broad diversity of communities and connects billions of workstations. Web users have very different backgrounds, interests, and usage purposes. Most users may not have good knowledge of the structure of the information network and may not be aware of the heavy cost of a particular search that they perform.
- **The Web has everything.** Only a small portion of the information on the Web is truly relevant or useful to someone (or some task). Finding the portion of the Web that is truly relevant to a person and the task being performed is a prominent issue in Web-related research.

Diff: 2 Page Ref: 429-30

62) What is the definition of text analytics according to the experts in the field?

Answer: Text analytics is a broader concept that includes information retrieval as well as information extraction, data mining, and Web mining.

Diff: 2 Page Ref: 392

63) How would you describe information extraction in text mining?

Answer: Information extraction is the identification of key phrases and relationships within text by looking for predefined objects and sequences in text by way of pattern matching.

Diff: 2 Page Ref: 394

64) Natural language processing (NLP), a subfield of artificial intelligence and computational linguistics, is an important component of text mining. What is the definition of NLP?

Answer: NLP is a discipline that studies the problem of "understanding" the natural human language, with the view of converting depictions of human language into more formal representations in the form of numeric and symbolic data that are easier for computer programs to manipulate.

Diff: 2 Page Ref: 398

65) In the security domain, one of the largest and most prominent text mining applications is the

highly classified ECHELON surveillance system. What is ECHELON assumed to be capable of doing?

Answer: Identifying the content of telephone calls, faxes, e-mails, and other types of data and intercepting information sent via satellites, public switched telephone networks, and microwave links.

Diff: 2 Page Ref: 403

66) Describe the query-specific clustering method as it relates to clustering.

Answer: This method employs a hierarchical clustering approach where the most relevant documents to the posed query appear in small tight clusters that are nested in larger clusters containing less similar documents, creating a spectrum of relevance levels among the documents.

Diff: 3 Page Ref: 414

67) What is a Web crawler and what function does it serve in a search engine?

Answer: A Web crawler (also called a spider or a Web spider) is a piece of software that systematically browses (crawls through) the World Wide Web for the purpose of finding and fetching Web pages. Often Web crawlers copy all the pages they visit for later processing by other functions of a search engine.

Diff: 2 Page Ref: 434-5

68) What is search engine optimization (SEO) and why is it important for organizations that own Web sites?

Answer: Search engine optimization (SEO) is the intentional activity of affecting the visibility of an e-commerce site or a Web site in a search engine's natural (unpaid or organic) search results. In general, the higher ranked on the search results page, and more frequently a site appears in the search results list, the more visitors it will receive from the search engine's users. Being indexed by search engines like Google, Bing, and Yahoo! is not good enough for businesses. Getting ranked on the most wide used search engines and getting ranked higher than your competitors are what make the difference.

Diff: 3 Page Ref: 436-7

69) What is the difference between white hat and black hat SEO activities?

Answer: An SEO technique is considered **white hat** if it conforms to the search engines' guidelines and involves no deception. Because search engine guidelines are not written as a series of rules or commandments, this is an important distinction to note. White-hat SEO is not just about following guidelines, but about ensuring that the content a search engine indexes and subsequently ranks is the same content a user will see.

**Black-hat** SEO attempts to improve rankings in ways that are disapproved by the search engines, or involve deception or trying to trick search engine algorithms from their intended purpose.

Diff: 3 Page Ref: 437-8

70) How would you define clickstream analysis?

Answer: **Clickstream analysis** is the analysis of information collected by Web servers to help companies understand user behavior better. By using the data and text mining techniques, companies can frequently discern interesting patterns from the clickstreams. Data collected from clickstreams include user data, session data, which pages they viewed and when and how often they visited. Knowledge extracted from clickstreams includes usage patterns, user profiles, page profiles, visit profiles and customer value.

Diff: 3    Page Ref: 441

1) Modeling can be viewed as a science in its entirety.

Answer: FALSE

Diff: 2 Page Ref: 460

2) In the opening vignette, the solution helped to determine how many vendors to award contracts to, as well as the size of each of the contracts.

Answer: TRUE

Diff: 2 Page Ref: 462

3) If linear programming can be successfully applied a problem, the output is usually optimal.

Answer: TRUE

Diff: 2 Page Ref: 479

4) In the School District of Philadelphia opening vignette, the district was able to use the standard version of Microsoft Excel exclusively to perform the needed analysis.

Answer: FALSE

Diff: 3 Page Ref: 463

5) In order to be effective, analysts must use models to solve problems with no regard to the organizational culture to find optimal results.

Answer: FALSE

Diff: 2 Page Ref: 461

6) The use of simulation models is desirable because they can usually be solved in one pass, without incurring the time and cost of iterations.

Answer: FALSE

Diff: 2 Page Ref: 495

7) An advantage of simulation is that it allows model builders to solve problems with minimal interaction with users or managers.

Answer: FALSE

Diff: 2 Page Ref: 495

8) The trend is towards developing and using Web tools and software to access and run modeling software.

Answer: TRUE

Diff: 1 Page Ref: 468

9) Using data cubes in OLAP systems opens the data up to analysis by more classes of models.

Answer: FALSE

Diff: 3 Page Ref: 468

10) Another name for result variables is independent variables.

Answer: FALSE

Diff: 2 Page Ref: 469

11) Taking a decision under risk is different from taking the decision under uncertainty.

Answer: TRUE

Diff: 2 Page Ref: 471

12) Spreadsheets are the second most popular tool for modeling.

Answer: FALSE

Diff: 1 Page Ref: 474

13) Linear programming seeks to optimally allocate resources among competing activities and is likely the best-known optimization model.

Answer: TRUE

Diff: 2 Page Ref: 474

14) When using Excel's Solver, there may be issues of complexity and model size that require a 3rd party add-in (additional software).

Answer: FALSE

Diff: 3 Page Ref: 464

15) Most managerial problems can be properly evaluated and solved using a single goal, such as profit maximization.

Answer: FALSE

Diff: 3 Page Ref: 486

16) Sensitivity analysis seeks to assess the impact of changes in the input data and parameters on the proposed solution.

Answer: TRUE

Diff: 2 Page Ref: 487

17) What if and goal seeking are the two most common methods of sensitivity analysis.

Answer: TRUE

Diff: 2 Page Ref: 505

18) An expected value is computed by dividing the results (i.e., outcomes) by their respective probabilities and subtracting them.

Answer: FALSE

Diff: 2 Page Ref: 491

19) Time compression in a simulation allows managers some feel as to the long-term effects of many policies.

Answer: TRUE

Diff: 2 Page Ref: 494

20) The analytic hierarchy process (AHP) can be categorized as a model that creates optimization via algorithm.

Answer: FALSE

Diff: 2 Page Ref: 467

21) Which of the following is NOT a component of decision support mathematical processes?

- A) result variables
- B) decision variables
- C) controlled variables
- D) uncontrolled variables

Answer: C

Diff: 3 Page Ref: 469-70

22) Environmental scanning is important for all of the following reasons EXCEPT:

- A) organizational culture is important and affects the model use.
- B) it is critical to identify key corporate decision makers.
- C) environmental factors may have created the current problem.
- D) environments have greater impact on a model than the organization does.

Answer: D

Diff: 2 Page Ref: 465

23) "Customer Income" is an example of an uncontrolled variable (parameter) that would be associated with what type of decision variable?

- A) prime rate
- B) audit schedule
- C) staffing level
- D) advertising budget

Answer: D

Diff: 3 Page Ref: 470

24) Models can be built with the help of human knowledge and expertise. Another source of help in building these models is:

- A) the customer.
- B) classification and clustering methods.
- C) customer service reps.
- D) business partners.

Answer: B

Diff: 2 Page Ref: 467-68

25) What is an influence diagram?

- A) a diagram showing the influence of decision makers
- B) a graphical representation of a model
- C) a map of the environment around decision makers
- D) a map of the environment around a model

Answer: B

Diff: 2 Page Ref: 468

26) Spreadsheets are particularly useful for all of the following reasons EXCEPT:

- A) they include extensive statistical, forecasting, and other modeling and database management capabilities, functions, and routines.
- B) they support a variety of add-ins that expand their functionality.
- C) they can perform model solution tasks such as linear programming and regression analysis.
- D) they require significant training to use, and are generally used by experts.

Answer: D

Diff: 3 Page Ref: 473-74

27) Linear programming belongs to a family of tools called:

- A) decision tree models.
- B) qualitative models.
- C) mathematical programming methods.
- D) heuristic programming models.

Answer: C

Diff: 2 Page Ref: 485

28) Which of the following is NOT a component of a linear programming problem?

- A) internal metrics
- B) constraints
- C) objective function
- D) decision variables

Answer: A

Diff: 2 Page Ref: 479

29) Because real decision-making situations involve some randomness and deal with semistructured or unstructured situations it can be said that “reality is complex.” What type of decision support method is often successfully employed under these conditions?

- A) simulation
- B) genetic algorithms
- C) optimization
- D) human intuition

Answer: A

Diff: 3 Page Ref: 493

30) Managers in organizations typically have:

- A) single goals that can be optimized using linear and nonlinear programming.
- B) a small number of goals that can be independently optimized using linear and nonlinear programming.
- C) single goals that cannot be optimized using linear and nonlinear programming.
- D) multiple goals that need to be simultaneously or jointly optimized.

Answer: D

Diff: 3 Page Ref: 486-7

31) Sensitivity analysis is important in management support systems for all of the following reasons EXCEPT:

- A) it allows flexibility and adaptation to changing conditions.
- B) it permits the manager to input data to increase his/her confidence in the model.
- C) it improves the mathematical optimality of the generated solutions.
- D) it provides a better understanding of the model and the decision-making situation.

Answer: C

Diff: 3 Page Ref: 487

32) The question "What will total earnings be if we reduce our inventory stocking costs by 10%?" is a type of:

- A) goal-seeking analysis.
- B) what-if analysis.
- C) sensitivity analysis.
- D) utility modeling.

Answer: B

Diff: 2 Page Ref: 488

33) The question "What advertising budget is needed to increase market share by 7%?" is a type of:

- A) goal-seeking analysis.
- B) what-if analysis.
- C) sensitivity analysis.
- D) utility modeling.

Answer: A

Diff: 2 Page Ref: 489

34) The question "How many servers will be needed to reduce the waiting time of restaurant customers to less than 9 minutes?" is a type of:

- A) goal-seeking analysis.
- B) what-if analysis.
- C) sensitivity analysis.
- D) utility modeling.

Answer: A

Diff: 2 Page Ref: 489

35) Decision trees are best suited to solve what types of problems?

- A) problems with a large number of alternatives
- B) problems with a tabular representation
- C) problems where probabilities are unknown
- D) problems with a single goal

Answer: D

Diff: 2 Page Ref: 490

36) In handling uncertainty in decision modeling, the optimistic approach assumes:

- A) the best possible outcome of most alternatives will occur.
- B) the best possible outcome of some alternatives will occur.
- C) the best possible outcome of each alternative will occur.
- D) the best possible outcome of one alternative will occur.

Answer: C

Diff: 2 Page Ref: 491

37) In handling uncertainty in decision modeling, what does the pessimistic approach do?

- A) It assumes the worst possible outcome of one alternative will occur and then avoids it.
- B) It assumes the worst possible outcome of some alternatives will occur and then selects the best of them.
- C) It assumes the worst possible outcome of each alternative will occur and then selects the worst of them.
- D) It assumes the worst possible outcome of each alternative will occur and then selects the best of them.

Answer: D

Diff: 3 Page Ref: 491

38) An alternative representation of the decision table is a:

- A) Gantt chart.
- B) Fishbone diagram.
- C) decision tree.
- D) decision chart.

Answer: C

Diff: 2 Page Ref: 492

39) Which of the following is an advantage of simulation?

- A) It always results in optimal solutions.
- B) It can incorporate significant real-life complexity.
- C) It solves problems in one pass with no iterations.
- D) Simulation software requires special skills.

Answer: B

Diff: 3 Page Ref: 494-5

40) In which stage of the simulation methodology do you determine the variables and gather data?

- A) defining the problem
- B) designing the experiment
- C) testing and validating the model
- D) constructing the simulation model

Answer: D

Diff: 3 Page Ref: 495-6

41) One of the advantages of simulation is that a great amount of \_\_\_\_\_ can be attained, quickly giving a manager some feel as to the long-term (1- to 10-year) effects of many policies.

Answer: time compression

Diff: 2 Page Ref: 494

42) Identifying a model's \_\_\_\_\_ (e.g., decision, result, uncontrollable) and their relationships is very important in creating and using models.

Answer: variables

Diff: 2 Page Ref: 463

43) \_\_\_\_\_ models are used to predict the future and are used widely in e-commerce.

Answer: Forecasting

Diff: 1 Page Ref: 465

44) \_\_\_\_\_ modeling uses rules to determine solutions that are good enough.

Answer: Heuristic

Diff: 2 Page Ref: 467

45) In non-quantitative models, the relationships are symbolic or \_\_\_\_\_.

Answer: qualitative

Diff: 2 Page Ref: 469

46) In decision-making, fixed factors that affect the result variables but are not manipulated by decision maker are called \_\_\_\_\_ variables.

Answer: uncontrollable

Diff: 2 Page Ref: 469

47) Deciding to purchase an FDIC-insured Certificate of Deposit at a U.S. bank can be viewed as decision making under \_\_\_\_\_.

Answer: certainty

Diff: 2 Page Ref: 471

48) Simulation involves setting up a \_\_\_\_\_ of a real system and conducting repetitive experiments on it.

Answer: model

Diff: 2 Page Ref: 495

49) In \_\_\_\_\_ simulation, one or more of the independent variables follows certain probability distributions, which can be either discrete distributions or continuous distributions.

Answer: probabilistic

Diff: 2 Page Ref: 497

50) In comparison to static models, \_\_\_\_\_ models represent behavior over time.

Answer: dynamic

Diff: 2 Page Ref: 476

51) The most common simulation method for business decision problems is \_\_\_\_\_ simulation.

Answer: Monte Carlo

Diff: 2 Page Ref: 497

52) In mathematical programming, of available solutions, the \_\_\_\_\_ solution is the best; i.e., the degree of goal attainment associated with it is the highest.

Answer: optimal

Diff: 2 Page Ref: 479

53) \_\_\_\_\_ simulation refers to building a model of a system where the interaction between different entities is studied.

Answer: Discrete event

Diff: 2 Page Ref: 498

54) Testing the robustness of decisions under changing conditions is an example of \_\_\_\_\_ analysis.

Answer: sensitivity

Diff: 2 Page Ref: 487

55) Utility \_\_\_\_\_ is a modeling method for handling multiple goals.

Answer: theory

Diff: 2 Page Ref: 487

56) \_\_\_\_\_ seeking calculates the values of the inputs necessary to achieve a desired level of an output.

Answer: Goal

Diff: 2 Page Ref: 489

57) \_\_\_\_\_ tables conveniently organize information and knowledge in a systematic, tabular manner to prepare it for analysis and consideration of alternatives.

Answer: Decision

Diff: 2 Page Ref: 490

58) A decision tree can be cumbersome if there are many \_\_\_\_\_ or states of nature.

Answer: alternatives/choices

Diff: 2 Page Ref: 492

59) The analytic hierarchy process can be used to great effect to solve multi-\_\_\_\_\_ problems.

Answer: criteria

Diff: 2 Page Ref: 493

60) In a visual interactive simulation (VIS), \_\_\_\_\_ models display systems that evolve over time, and the evolution is represented by animation.

Answer: dynamic

Diff: 2 Page Ref: 500

61) Can customer relationship management (CRM) systems and revenue management systems

(RMS) recommend not selling a particular product to certain customers? If so, why; if not, why not?

Answer: Yes, CRM and RMS can recommend ignoring certain customers or not selling a bundle of products to a particular set of customers. Part of this effort involves identifying lifelong customer profitability. These approaches rely heavily on forecasting techniques, which are typically described as predictive analytics. These systems attempt to predict who their best (i.e., most profitable) customers (and worst ones as well) are and focus on identifying products and services—or none at all—at appropriate prices to appeal to them.

Diff: 3 Page Ref: 468

62) List and describe four categories of models. Give examples in each category.

Answer:

- **Optimization of problems with few alternatives:** Find the best solution from a small number of alternatives; e.g., decision tables, decision trees, analytic hierarchy process
- **Optimization via algorithm:** Find the best solution from a large number of alternatives, using a step-by-step improvement process; e.g., linear and other mathematical programming models, network models
- **Optimization via an analytic formula:** Find the best solution in one step, using a formula; e.g., some inventory models
- **Simulation:** Find a good enough solution or the best among the alternatives checked, using experimentation; e.g., Monte Carlo simulation
- **Heuristics:** Find a good enough solution, using rules; e.g., heuristic programming, expert systems
- **Predictive models:** Predict the future for a given scenario; e.g., forecasting models, Markov analysis

Diff: 3 Page Ref: 467

63) All quantitative models are typically made up of four basic components. List and describe them as well as what links them together.

Answer:

1. **Result (outcome) variables** reflect the level of effectiveness of a system; that is, they indicate how well the system performs or attains its goal(s). These variables are outputs.
2. **Decision variables** describe alternative courses of action. The decision maker controls the decision variables.
3. **Uncontrollable variables or parameters** are factors that affect the result variables but are not under the control of the decision maker. Either these factors can be fixed, in which case they are called parameters, or they can vary, in which case they are called variables.
4. **Intermediate result variables** reflect intermediate outcomes in mathematical models.

Diff: 3 Page Ref: 469-70

64) Compare and contrast decision making under uncertainty, risk and certainty.

Answer:

- In **decision making under certainty**, it is assumed that complete knowledge is available so that the decision maker knows exactly what the outcome of each course of action will be (as in a deterministic environment).
- In **decision making under uncertainty**, the decision maker considers situations in which several outcomes are possible for each course of action. In contrast to the risk situation, in this case, the decision maker does not know, or cannot estimate, the probability of occurrence of the possible outcomes. Decision making under uncertainty is more difficult than decision making under certainty because there is insufficient information.
- In **decision making under risk** (also known as a probabilistic or stochastic decision making situation), the decision maker must consider several possible outcomes for each alternative, each with a given probability of occurrence.

Diff: 2 Page Ref: 471-2

65) List four rational economic assumptions the linear programming allocation model is based upon.

Answer:

- Returns from different allocations can be compared; that is, they can be measured by a common unit (e.g., dollars, utility).
- The return from any allocation is independent of other allocations.
- The total return is the sum of the returns yielded by the different activities.
- All data are known with certainty.
- The resources are to be used in the most economical manner.

Diff: 2 Page Ref: 480

66) List four difficulties that may arise when analyzing multiple goals.

Answer:

- It is usually difficult to obtain an explicit statement of the organization's goals.
- The decision maker may change the importance assigned to specific goals over time or for different decision scenarios.
- Goals and sub-goals are viewed differently at various levels of the organization and within different departments.
- Goals change in response to changes in the organization and its environment.
- The relationship between alternatives and their role in determining goals may be difficult to quantify.
- Complex problems are solved by groups of decision makers, each of whom has a personal agenda.
- Participants assess the importance (priorities) of the various goals differently.

Diff: 2 Page Ref: 487

67) List four things sensitivity analyses are used for.

Answer:

- Revising models to eliminate too-large sensitivities
- Adding details about sensitive variables or scenarios
- Obtaining better estimates of sensitive external variables
- Altering a real-world system to reduce actual sensitivities
- Accepting and using the sensitive (and hence vulnerable) real world, leading to the continuous and close monitoring of actual results

Diff: 2 Page Ref: 488

68) What is the most common method for treating risk in decision trees and tables?

Answer: The most common method for handling risk in decision trees and tables is to select the alternative with the greatest expected value.

Diff: 2 Page Ref: 491

69) List the seven steps in the methodology of simulation.

Answer:

1. Define the problem.
2. Construct the simulation model.
3. Test and validate the model.
4. Design the experiment.
5. Conduct the experiment.
6. Evaluate the results.
7. Implement the results.

Diff: 2 Page Ref: 495-6

70) List five major types of simulation.

Answer:

- probabilistic simulation
- time-dependent and time-independent simulation
- visual simulation
- system dynamics modeling
- agent-based modeling

Diff: 1 Page Ref: 497

1) In the classification of location-based analytic applications, examining geographic site locations falls in the consumer-oriented category.

Answer: FALSE

Diff: 2 Page Ref: 568

2) The term "Big Data" is relative as it depends on the size of the using organization.

Answer: TRUE

Diff: 2 Page Ref: 513

3) Cloud computing originates from a reference to the Internet as a "cloud" and is a combination of several information technology components as services.

Answer: TRUE

Diff: 2 Page Ref: 557

4) Many analytics tools are too complex for the average user, and this is one justification for Big Data.

Answer: TRUE

Diff: 2 Page Ref: 519

5) Web-based e-mail such as Google's Gmail are not examples of cloud computing.

Answer: FALSE

Diff: 2 Page Ref: 557

6) Big Data technologies typically employ nonrelational data storage capabilities to process unstructured and semistructured data.

Answer: TRUE

Diff: 2 Page Ref: 523

7) MapReduce can be easily understood by skilled programmers due to its procedural nature.

Answer: TRUE

Diff: 2 Page Ref: 523

8) Hadoop was designed to handle petabytes and exabytes of data distributed over multiple nodes in parallel.

Answer: TRUE

Diff: 2 Page Ref: 524

9) Hadoop and MapReduce require each other to work.

Answer: FALSE

Diff: 2 Page Ref: 525

10) In most cases, Hadoop is used to replace data warehouses.

Answer: FALSE

Diff: 2 Page Ref: 525

11) Despite their potential, many current NoSQL tools lack mature management and monitoring tools.

Answer: TRUE

Diff: 2 Page Ref: 529

12) Data-as-a-service began with the notion that data quality could happen in a centralized place, cleansing and enriching data and offering it to different systems, applications, or users, irrespective of where they were in the organization, computers, or on the network.

Answer: TRUE

Diff: 2 Page Ref: 559

13) IaaS helps provide faster information, but provides information only to managers in an organization.

Answer: FALSE

Diff: 2 Page Ref: 559

14) While cloud services are useful for small and midsize analytic applications, they are still limited in their ability to handle Big Data applications.

Answer: FALSE

Diff: 2 Page Ref: 562

15) For low latency, interactive reports, a data warehouse is preferable to Hadoop.

Answer: TRUE

Diff: 2 Page Ref: 535

16) If you have many flexible programming languages running in parallel, Hadoop is preferable to a data warehouse.

Answer: TRUE

Diff: 2 Page Ref: 535

17) Openshift is Google's cloud application platform based on a PaaS model.

Answer: FALSE

Diff: 2 Page Ref: 564

18) The direction of the industry over the next few years will likely be moving toward more tightly coupled Hadoop and relational DBMS-based data warehouse technologies.

Answer: TRUE

Diff: 1 Page Ref: 536

19) Managers should be more concerned that data is stored in a structured data warehouse or a Hadoop cluster, and less about the actually the insights that can be derived from the data.

Answer: FALSE

Diff: 2 Page Ref: 537

20) Current total storage capacity lags behind the digital information being generated in the world.

Answer: TRUE

Diff: 2 Page Ref: 544

21) Using data to understand customers/clients and business operations to sustain and foster growth and profitability is:

- A) easier with the advent of BI and Big Data.
- B) essentially the same now as it has always been.
- C) an increasingly challenging task for today's enterprises.
- D) now completely automated with no human intervention required.

Answer: C

Diff: 2 Page Ref: 513

22) A newly popular unit of data in the Big Data era is the petabyte (PB), which is:

- A)  $10^9$  bytes.
- B)  $10^{12}$  bytes.
- C)  $10^{15}$  bytes.
- D)  $10^{18}$  bytes.

Answer: C

Diff: 2 Page Ref: 515

23) Which of the following sources is likely to produce Big Data the fastest?

- A) order entry clerks
- B) cashiers
- C) RFID tags
- D) online customers

Answer: C

Diff: 2 Page Ref: 515

24) Data flows can be highly inconsistent, with periodic peaks, making data loads hard to manage. What is this feature of Big Data called?

- A) volatility
- B) periodicity
- C) inconsistency
- D) variability

Answer: D

Diff: 2 Page Ref: 516

25) What kind of location-based analytics is real-time marketing promotion?

- A) organization-oriented geospatial static approach
- B) organization-oriented location-based dynamic approach
- C) consumer-oriented geospatial static approach
- D) consumer-oriented location-based dynamic approach

Answer: B

Diff: 2 Page Ref: 568

26) Allowing Big Data to be processed in memory and distributed across a dedicated set of nodes

can solve complex problems in near-real time with highly accurate insights. What is this process called?

- A) in-memory analytics
- B) in-database analytics
- C) grid computing
- D) appliances

Answer: A

Diff: 2 Page Ref: 520

27) Which Big Data approach promotes efficiency, lower cost, and better performance by processing jobs in a shared, centrally managed pool of IT resources?

- A) in-memory analytics
- B) in-database analytics
- C) grid computing
- D) appliances

Answer: C

Diff: 2 Page Ref: 521

28) How does Hadoop work?

- A) It integrates Big Data into a whole so large data elements can be processed as a whole on one computer.
- B) It integrates Big Data into a whole so large data elements can be processed as a whole on multiple computers.
- C) It breaks up Big Data into multiple parts so each part can be processed and analyzed at the same time on one computer.
- D) It breaks up Big Data into multiple parts so each part can be processed and analyzed at the same time on multiple computers.

Answer: D

Diff: 3 Page Ref: 525

29) What is the Hadoop Distributed File System (HDFS) designed to handle?

- A) unstructured and semistructured relational data
- B) unstructured and semistructured non-relational data
- C) structured and semistructured relational data
- D) structured and semistructured non-relational data

Answer: B

Diff: 2 Page Ref: 525

30) In a Hadoop "stack," what is a slave node?

- A) a node where bits of programs are stored
- B) a node where metadata is stored and used to organize data processing
- C) a node where data is stored and processed
- D) a node responsible for holding all the source programs

Answer: C

Diff: 2 Page Ref: 525

31) In a Hadoop "stack," what node periodically replicates and stores data from the Name Node should it fail?

- A) backup node
- B) secondary node
- C) substitute node
- D) slave node

Answer: B

Diff: 2 Page Ref: 525

32) All of the following statements about MapReduce are true EXCEPT:

- A) MapReduce is a general-purpose execution engine.
- B) MapReduce handles the complexities of network communication.
- C) MapReduce handles parallel programming.
- D) MapReduce runs without fault tolerance.

Answer: D

Diff: 2 Page Ref: 528

33) GPS Navigation is an example of which kind of location-based analytics?

- A) organization-oriented geospatial static approach
- B) organization-oriented location-based dynamic approach
- C) consumer-oriented geospatial static approach
- D) consumer-oriented location-based dynamic approach

Answer: C

Diff: 2 Page Ref: 568

34) Which of the following is true of data-as-a-Service (DaaS) platforms?

- A) Knowing where the data resides is critical to the functioning of the platform.
- B) There are standardized processes for accessing data wherever it is located.
- C) Business processes can access local data only.
- D) Data quality happens on each individual platform.

Answer: B

Diff: 2 Page Ref: 559

35) Traditional data warehouses have not been able to keep up with:

- A) the evolution of the SQL language.
- B) the variety and complexity of data.
- C) expert systems that run on them.
- D) OLAP.

Answer: B

Diff: 2 Page Ref: 532

36) Under which of the following requirements would it be more appropriate to use Hadoop over a data warehouse?

- A) ANSI 2003 SQL compliance is required
- B) online archives alternative to tape
- C) unrestricted, ungoverned sandbox explorations
- D) analysis of provisional data

Answer: C

Diff: 2 Page Ref: 534

37) Which of the following is NOT a large cloud providers (infrastructure providers)?

- A) Amazon Web Services
- B) IBM Hadoop
- C) Microsoft Azure
- D) Google Cloud

Answer: B

Diff: 2 Page Ref: 550

38) The analytics layer of the Big Data stack is experiencing what type of development currently?

- A) significant development
- B) limited development
- C) no development/stagnant
- D) no development/reject as being non-important

Answer: A

Diff: 2 Page Ref: 550

39) In the health sciences, the largest potential source of Big Data comes from:

- A) accounting systems.
- B) human resources.
- C) patient monitoring.
- D) research administration.

Answer: C

Diff: 2 Page Ref: 548

40) Which of the following services can be described as infrastructure resources like networks, storage, servers, and other computing resources are provided to client companies?

- A) SaaS
- B) PaaS
- C) IaaS
- D) ETL

Answer: C

Diff: 2 Page Ref: 559

41) Most Big Data is generated automatically by \_\_\_\_\_.

Answer: machines

Diff: 2 Page Ref: 523

42) \_\_\_\_\_ refers to the conformity to facts: accuracy, quality, truthfulness, or trustworthiness

of the data.

Answer: Veracity

Diff: 2 Page Ref: 516

43) In-motion \_\_\_\_\_ is often overlooked today in the world of BI and Big Data.

Answer: analytics

Diff: 2 Page Ref: 516

44) The \_\_\_\_\_ of Big Data is its potential to contain more useful patterns and interesting anomalies than "small" data.

Answer: value proposition

Diff: 2 Page Ref: 516

45) As the size and the complexity of analytical systems increase, the need for more \_\_\_\_\_ analytical systems is also increasing to obtain the best performance.

Answer: efficient

Diff: 2 Page Ref: 520

46) \_\_\_\_\_ speeds time to insights and enables better data governance by performing data integration and analytic functions inside the database.

Answer: In-database analytics

Diff: 2 Page Ref: 520

47) \_\_\_\_\_ bring together hardware and software in a physical unit that is not only fast but also scalable on an as-needed basis.

Answer: Appliances

Diff: 2 Page Ref: 520

48) Big Data employs \_\_\_\_\_ processing techniques and nonrelational data storage capabilities in order to process unstructured and semistructured data.

Answer: parallel

Diff: 2 Page Ref: 523

49) In the world of Big Data, \_\_\_\_\_ aids organizations in processing and analyzing large volumes of multi-structured data. Examples include indexing and search, graph analysis, etc.

Answer: MapReduce

Diff: 2 Page Ref: 523

50) The \_\_\_\_\_ Node in a Hadoop cluster provides client information on where in the cluster particular data is stored and if any nodes fail.

Answer: Name

Diff: 2 Page Ref: 525

51) A job \_\_\_\_\_ is a node in a Hadoop cluster that initiates and coordinates MapReduce jobs, or the processing of the data.

Answer: tracker

Diff: 2 Page Ref: 525

52) HBase is a nonrelational \_\_\_\_\_ that allows for low-latency, quick lookups in Hadoop.

Answer: database

Diff: 2 Page Ref: 526

53) Hadoop is primarily a(n) \_\_\_\_\_ file system and lacks capabilities we'd associate with a DBMS, such as indexing, random access to data, and support for SQL.

Answer: distributed

Diff: 2 Page Ref: 528

54) HBase, Cassandra, MongoDB, and Accumulo are examples of \_\_\_\_\_ databases.

Answer: NoSQL

Diff: 2 Page Ref: 526

55) There is considerable confusion and overlap in the use of cloud terminology. For example, some vendors also add information as a service, which shares what acronym as infrastructure as a service?

Answer: IaaS

Diff: 3 Page Ref: 559

56) As volumes of Big Data arrive from multiple sources such as sensors, machines, social media, and clickstream interactions, the first step is to \_\_\_\_\_ all the data reliably and cost effectively.

Answer: capture

Diff: 2 Page Ref: 533

57) In open-source databases, the most important performance enhancement to date is the cost-based \_\_\_\_\_.

Answer: optimizer

Diff: 2 Page Ref: 534

58) Data \_\_\_\_\_ or pulling of data from multiple subject areas and numerous applications into one repository is the raison d'être for data warehouses.

Answer: integration

Diff: 2 Page Ref: 534

59) In the energy industry, \_\_\_\_\_ grids are one of the most impactful applications of stream analytics.

Answer: smart

Diff: 2 Page Ref: 544

60) How do the traditional location-based analytic techniques using geocoding of organizational locations and consumers hamper the organizations in understanding "true location-based" impacts?

Answer: Locations based on postal codes offer an aggregate view of a large geographic area. This poor granularity may not be able to pinpoint the growth opportunities within a region. The location of the target customers can change rapidly. An organization's promotional campaigns might not target the right customers.

Diff: 2 Page Ref: 568

61) In what ways can communications companies use geospatial analysis to harness their data effectively?

Answer: Communication companies often generate massive amounts of data every day. The ability to analyze the data quickly with a high level of location-specific granularity can better identify the customer churn and help in formulating strategies specific to locations for increasing operational efficiency, quality of service, and revenue.

Diff: 2 Page Ref: 571

62) List and describe the three main "V"s that characterize Big Data.

Answer:

- **Volume:** This is obviously the most common trait of Big Data. Many factors contributed to the exponential increase in data volume, such as transaction-based data stored through the years, text data constantly streaming in from social media, increasing amounts of sensor data being collected, automatically generated RFID and GPS data, and so forth.
- **Variety:** Data today comes in all types of formats—ranging from traditional databases to hierarchical data stores created by the end users and OLAP systems, to text documents, e-mail, XML, meter-collected, sensor-captured data, to video, audio, and stock ticker data. By some estimates, 80 to 85 percent of all organizations' data is in some sort of unstructured or semistructured format
- **Velocity:** This refers to both how fast data is being produced and how fast the data must be processed (i.e., captured, stored, and analyzed) to meet the need or demand. RFID tags, automated sensors, GPS devices, and smart meters are driving an increasing need to deal with torrents of data in near-real time.

Diff: 2 Page Ref: 514-15

63) List and describe four of the most critical success factors for Big Data analytics.

Answer:

- **A clear business need** (alignment with the vision and the strategy). Business investments ought to be made for the good of the business, not for the sake of mere technology advancements. Therefore the main driver for Big Data analytics should be the needs of the business at any level—strategic, tactical, and operations.
- **Strong, committed sponsorship** (executive champion). It is a well-known fact that if you don't have strong, committed executive sponsorship, it is difficult (if not impossible) to succeed. If the scope is a single or a few analytical applications, the sponsorship can be at the departmental level. However, if the target is enterprise-wide organizational transformation, which is often the case for Big Data initiatives, sponsorship needs to be at the highest levels and organization-wide.
- **Alignment between the business and IT strategy**. It is essential to make sure that the analytics work is always supporting the business strategy, and not other way around. Analytics should play the enabling role in successful execution of the business strategy.
- **A fact-based decision making culture**. In a fact-based decision-making culture, the numbers rather than intuition, gut feeling, or supposition drive decision making. There is also a culture of experimentation to see what works and doesn't. To create a fact-based decision-making culture, senior management needs to do the following: recognize that some people can't or won't adjust; be a vocal supporter; stress that outdated methods must be discontinued; ask to see what analytics went into decisions; link incentives and compensation to desired behaviors.
- **A strong data infrastructure**. Data warehouses have provided the data infrastructure for analytics. This infrastructure is changing and being enhanced in the Big Data era with new technologies. Success requires marrying the old with the new for a holistic infrastructure that works synergistically.

Diff: 2 Page Ref: 519-20

64) When considering Big Data projects and architecture, list and describe five challenges designers should be mindful of in order to make the journey to analytics competency less stressful.

Answer:

- **Data volume**: The ability to capture, store, and process the huge volume of data at an acceptable speed so that the latest information is available to decision makers when they need it.
- **Data integration**: The ability to combine data that is not similar in structure or source and to do so quickly and at reasonable cost.
- **Processing capabilities**: The ability to process the data quickly, as it is captured. The traditional way of collecting and then processing the data may not work. In many situations data needs to be analyzed as soon as it is captured to leverage the most value.
- **Data governance**: The ability to keep up with the security, privacy, ownership, and quality issues of Big Data. As the volume, variety (format and source), and velocity of data change, so should the capabilities of governance practices.
- **Skills availability**: Big Data is being harnessed with new tools and is being looked at in different ways. There is a shortage of data scientists with the skills to do the job.
- **Solution cost**: Since Big Data has opened up a world of possible business improvements, there is a great deal of experimentation and discovery taking place to determine the patterns that matter and the insights that turn to value. To ensure a positive ROI on a Big Data project, therefore, it is crucial to reduce the cost of the solutions used to find that value.

Diff: 3 Page Ref: 521

65) Define MapReduce.

Answer: As described by Dean and Ghemawat (2004), "MapReduce is a programming model and an associated implementation for processing and generating large data sets. Programs written in this functional style are automatically parallelized and executed on a large cluster of commodity machines. This allows programmers without any experience with parallel and distributed systems to easily utilize the resources of a large distributed system."

Diff: 2 Page Ref: 523

66) What is NoSQL as used for Big Data? Describe its major downsides.

Answer:

- NoSQL is a new style of database that has emerged to, like Hadoop, process large volumes of multi-structured data. However, whereas Hadoop is adept at supporting large-scale, batch-style historical analysis, NoSQL databases are aimed, for the most part (though there are some important exceptions), at serving up discrete data stored among large volumes of multi-structured data to end-user and automated Big Data applications. This capability is sorely lacking from relational database technology, which simply can't maintain needed application performance levels at Big Data scale.
- The downside of most NoSQL databases today is that they trade ACID (atomicity, consistency, isolation, durability) compliance for performance and scalability. Many also lack mature management and monitoring tools.

Diff: 2 Page Ref: 528-29

67) What is cloud computing? What is Amazon's general approach to the cloud computing services it provides?

Answer:

- Wikipedia defines cloud computing as "a style of computing in which dynamically scalable and often virtualized resources are provided over the Internet. Users need not have knowledge of, experience in, or control over the technology infrastructures in the cloud that supports them."
- Amazon.com has developed an impressive technology infrastructure for e-commerce as well as for business intelligence, customer relationship management, and supply chain management. It has built major data centers to manage its own operations. However, through Amazon.com's cloud services, many other companies can employ these very same facilities to gain advantages of these technologies without having to make a similar investment. Like other cloud-computing services, a user can subscribe to any of the facilities on a pay-as-you-go basis. This model of letting someone else own the hardware and software but making use of the facilities on a pay-per-use basis is the cornerstone of cloud computing.

Diff: 2 Page Ref: 557

68) Why are some portions of tape backup workloads being redirected to Hadoop clusters today?

Answer:

- First, while it may appear inexpensive to store data on tape, the true cost comes with the difficulty of retrieval. Not only is the data stored offline, requiring hours if not days to restore, but tape cartridges themselves are also prone to degradation over time, making data loss a reality and forcing companies to factor in those costs. To make matters worse, tape formats change every couple of years, requiring organizations to either perform massive data migrations to the newest tape format or risk the inability to restore data from obsolete tapes.
- Second, it has been shown that there is value in keeping historical data online and accessible. As in the clickstream example, keeping raw data on a spinning disk for a longer duration makes it easy for companies to revisit data when the context changes and new constraints need to be applied. Searching thousands of disks with Hadoop is dramatically faster and easier than spinning through hundreds of magnetic tapes. Additionally, as disk densities continue to double every 18 months, it becomes economically feasible for organizations to hold many years' worth of raw or refined data in HDFS.

Diff: 2 Page Ref: 533-34

69) What are the differences between stream analytics and perpetual analytics? When would you use one or the other?

Answer:

- In many cases they are used synonymously. However, in the context of intelligent systems, there is a difference. **Streaming analytics** involves applying transaction- level logic to real-time observations. The rules applied to these observations take into account previous observations as long as they occurred in the prescribed window; these windows have some arbitrary size (e.g., last 5 seconds, last 10,000 observations, etc.). **Perpetual analytics**, on the other hand, evaluates every incoming observation against all prior observations, where there is no window size. Recognizing how the new observation relates to all prior observations enables the discovery of real-time insight.
- When transactional volumes are high and the time-to-decision is too short, favoring nonpersistence and small window sizes, this translates into using streaming analytics. However, when the mission is critical and transaction volumes can be managed in real time, then perpetual analytics is a better answer.

Diff: 2 Page Ref: 544-45

70) Describe data stream mining and how it is used.

Answer: Data stream mining, as an enabling technology for stream analytics, is the process of extracting novel patterns and knowledge structures from continuous, rapid data records. A data stream is a continuous flow of ordered sequence of instances that in many applications of data stream mining can be read/processed only once or a small number of times using limited computing and storage capabilities. Examples of data streams include sensor data, computer network traffic, phone conversations, ATM transactions, web searches, and financial data. Data stream mining can be considered a subfield of data mining, machine learning, and knowledge discovery. In many data stream mining applications, the goal is to predict the class or value of new instances in the data stream given some knowledge about the class membership or values of previous instances in the data stream.

Diff: 2 Page Ref: 546

***Analytics, Data Science, & Artificial Intelligence, 11e (Sharda)***  
**Chapter 10 Robotics: Industrial and Consumer Applications**

1) In the opening case, one of the robots used had the appearance of a child's teddy bear.

Answer: TRUE

Diff: 2 Page Ref: 581

2) Less than 50% of human communication is nonverbal.

Answer: FALSE

Diff: 2 Page Ref: 581

3) This evolution and use of technologies are called the third industrial revolution.

Answer: FALSE

Diff: 2 Page Ref: 584

4) Factories have been using robots for a long time for manufacturing.

Answer: TRUE

Diff: 1 Page Ref: 584

5) The world's first moving conveyor belt assembly line was started by Henry Ford in the 1950's.

Answer: FALSE

Diff: 2 Page Ref: 585

6) The space race started by Russia's Sputnik and embraced by the United States led to many technology advances leading to growth of robotics.

Answer: TRUE

Diff: 2 Page Ref: 585

7) The Spyce robot automates the cooking of food, but orders are still taken by humans.

Answer: FALSE

Diff: 2 Page Ref: 588

8) The MAARS robot is designed for reconnaissance, surveillance, and target acquisition.

Answer: TRUE

Diff: 2 Page Ref: 589

9) Few robots run on batteries.

Answer: FALSE

Diff: 2 Page Ref: 596

10) The CPU allows a robot to perform its function by connecting all systems into one.

Answer: TRUE

Diff: 2 Page Ref: 596

11) If a human is directly remote controlling a machine, it is no longer considered a robot.

Answer: FALSE

Diff: 2 Page Ref: 597

12) A robotic prosthetic arm is an example of a supplementary robot.

Answer: TRUE

Diff: 2 Page Ref: 597

13) People believing that an autonomous car cannot keep them safe is an example of a regulatory challenge.

Answer: FALSE

Diff: 2 Page Ref: 600

14) Advances in deep learning, the ability to recognize an object is a key enabler of self-driving cars.

Answer: TRUE

Diff: 2 Page Ref: 598

15) The heart of an autonomous vehicle system is a laser rangefinder.

Answer: TRUE

Diff: 2 Page Ref: 598

16) Some states currently have specific laws that ban autonomous driving.

Answer: TRUE

Diff: 2 Page Ref: 599

17) A new job category has emerged to study the interactions between a robot and its coworkers and customers and to retrain the robot or take this information into account in designing the next generation.

Answer: TRUE

Diff: 2 Page Ref: 601

18) As the use of AI grows, the demand for coders in this area will paradoxically shrink.

Answer: FALSE

Diff: 3 Page Ref: 602

19) Standards to determine whether an AI technology is capable of providing satisfactory service in regulated professional fields is not required.

Answer: FALSE

Diff: 2 Page Ref: 605

20) Bill Gates set forth a proposal to tax robots that are used to automate existing human jobs.

Answer: TRUE

Diff: 2 Page Ref: 604

21) Which of the following is a concern related to the use of pet care and hospital settings?

- A) allergies
- B) dust
- C) bites
- D) all of these

Answer: D

Diff: 1 Page Ref: 581

22) Which of the following is an example of autonomy?

- A) welding panels on a car
- B) adding screws to a toaster
- C) assessing a patient in making a diagnosis
- D) responding to a request for directions at the airport

Answer: C

Diff: 3 Page Ref: 584

23) Who coined the term "robot"?

- A) Aristotle
- B) Leonardo Da Vinci
- C) Henry Ford
- D) Karel Capek

Answer: D

Diff: 3 Page Ref: 585

24) Developed in the 1950s, the first commercial robotic arm was named:

- A) Planetbot.
- B) Unimate.
- C) Handyman.
- D) Man-mate.

Answer: A

Diff: 3 Page Ref: 585

25) Developed in the 1960s, this was a two-arm electro-hydraulic robot.

- A) Planetbot
- B) Unimate
- C) Handyman
- D) Man-mate

Answer: C

Diff: 3 Page Ref: 585

26) It is estimated that by 2019, there will be close to how many significant robots?

- A) 6 million
- B) 1.6 million
- C) 2.6 million
- D) 26 million

Answer: C

Diff: 3 Page Ref: 585

27) Which of the following robot systems are focused on food preparation?

- A) San Francisco burger eatery
- B) Spyce
- C) SAFFIR
- D) A and B

Answer: D

Diff: 3 Page Ref: 588-90

28) Which of the following robots is a social bot intended to provide extended support to preschoolers by engaging them in storytelling?

- A) Tega
- B) Mahindra
- C) Snoo
- D) AGROBOT

Answer: A

Diff: 3 Page Ref: 587

29) Which component of a robot describe the devices that affect the environment, such as hands, legs, arms, bodies, and fingers?

- A) power controller
- B) sensors
- C) effectors
- D) actuators

Answer: C

Diff: 3 Page Ref: 596

30) Which component of a robot help them to make decisions according to their environment?

- A) power controller
- B) sensors
- C) effectors
- D) actuators

Answer: B

Diff: 3 Page Ref: 596

31) Which component of a robot is described as the driving force of a robot?

- A) power controller
- B) sensors
- C) effectors
- D) actuators

Answer: A

Diff: 3 Page Ref: 596

32) An iRobot Roomba is an example of what type of robot category?

- A) preset robot
- B) cobot
- C) stand-alone robot
- D) supplementary robot

Answer: C

Diff: 3 Page Ref: 597

33) A robot prosthetic arm is an example of what type of robot category?

- A) preset robot
- B) cobot
- C) stand-alone robot
- D) supplementary robot

Answer: D

Diff: 3 Page Ref: 597

34) A hospital robot that delivers medication and tracks if the medication has been taken is an example of what type of robot category?

- A) preset robot
- B) cobot
- C) stand-alone robot
- D) supplementary robot

Answer: C

Diff: 3 Page Ref: 597

35) In relation to autonomous cars, concerns about performance in bad weather is an example of which type of challenge?

- A) technology
- B) environmental
- C) regulatory
- D) public trust

Answer: B

Diff: 2 Page Ref: 599

36) In relation to autonomous cars, concerns about liability are examples of which type of challenge?

- A) technology
- B) environmental
- C) regulatory
- D) public trust

Answer: C

Diff: 2 Page Ref: 599-600

37) In relation to autonomous cars, concerns about safety are examples of which type of challenge?

- A) technology
- B) environmental
- C) regulatory
- D) public trust

Answer: D

Diff: 2 Page Ref: 600

38) Which of the following is an area in which the number of available jobs in the future is projected to shrink due to robotics?

- A) truck driving
- B) AI computer scientists
- C) data labelers
- D) autonomous car quality inspectors

Answer: A

Diff: 2 Page Ref: 601-2

39) As it relates to robots and AI, what type of issue is concern over payments to an injured party in an accident?

- A) tort liability
- B) patent
- C) taxation
- D) constitutional law

Answer: A

Diff: 2 Page Ref: 603

40) As it relates to robots and AI, what type of issue is concern over automated enforcement of laws?

- A) tort liability
- B) patent
- C) taxation
- D) constitutional law

Answer: D

Diff: 2 Page Ref: 605

41) Major countries in the world will soon have population rates of people aged 65 and older exceed that of the younger population by \_\_\_\_\_.

Answer: 2050

Diff: 1 Page Ref: 583

42) One benefit of emotional support robots is in the prevention of \_\_\_\_\_.

Answer: infections

Diff: 2 Page Ref: 582

43) Combinations of technologies such as machine learning, voice synthesis, voice recognition, natural language processing, machine \_\_\_\_\_, automation, micromachines, and so on make it possible to combine these technologies to satisfy many needs.

Answer: vision

Diff: 1 Page Ref: 583

44) The capability of adaptation to new situations leads to \_\_\_\_\_.

Answer: autonomy

Diff: 3 Page Ref: 584

45) \_\_\_\_\_ is performing preselected repetitive tasks.

Answer: Automation

Diff: 2 Page Ref: 584

46) Developed in 1963, \_\_\_\_\_ could move freely, avoiding obstacles in its path.

Answer: Shakey

Diff: 2 Page Ref: 585

47) In 1976, during NASA's mission to \_\_\_\_\_, a Viking lander was created for the atmospheric conditions.

Answer: Mars

Diff: 2 Page Ref: 585

48) BMW's Spartanburg, South Carolina, plant has employed 60 \_\_\_\_\_ robots.

Answer: collaborative

Diff: 2 Page Ref: 587

49) Tega is a social bot intended to provide extended support to preschoolers by engaging them via \_\_\_\_\_.

Answer: storytelling

Diff: 2 Page Ref: 587

50) The CPU provides \_\_\_\_\_ for the robot to learn from the surrounding movement of the body or any of its actions.

Answer: commands

Diff: 2 Page Ref: 596

51) Industrial robots have end \_\_\_\_\_ that contribute to the robot's work as a hand.

Answer: effectors

Diff: 2 Page Ref: 596

52) According to the survey by MarketsandMarkets, the cobots market in 2020 will be worth around \$\_\_\_\_\_.

Answer: 3.3 billion

Diff: 2 Page Ref: 597

53) The military uses \_\_\_\_\_ robots to detonate bombs or to act as soldiers around the clock on the battlefield.

Answer: remote-controlled

Diff: 2 Page Ref: 597

54) A number of new technologies are available in today's cars, such as \_\_\_\_\_ cameras and front and back sensors that help vehicles detect objects in the environment and alert the driver to them or even take necessary actions automatically.

Answer: rearview

Diff: 1 Page Ref: 598

55) Before sending driverless cars on roads, engineers drive a route several times and collect \_\_\_\_\_ about its surroundings.

Answer: data

Diff: 2 Page Ref: 598

56) In September 2016, DOT announced the first-ever guidelines for \_\_\_\_\_ driving.

Answer: autonomous

Diff: 2 Page Ref: 599

57) UBI \_\_\_\_\_ argue that giving every citizen a minimal basic income will ensure that no one goes hungry despite the massive loss of jobs that is likely to occur with the growth of robotics.

Answer: proponents

Diff: 2 Page Ref: 602

58) Analysts are presently addressing to what extent property rights should extend to \_\_\_\_\_.

Answer: autonomous AI

Diff: 2 Page Ref: 604

59) Moving beyond human inventions, a host of issues arise regarding AI that can \_\_\_\_\_ invent.

Answer: independently

Diff: 2 Page Ref: 603

60) List the key categories of robots.

Answer: The key categories of robots include:

- preset robots
- collaborative robots
- standalone robots
- remote-controlled robots
- supplementary robots

Diff: 2 Page Ref: 596-7

61) Research possible applications of cobots and discuss why many believe the market for these types of robots is so large.

Answer: Student research and selection of possible applications will vary.

Diff: 3 Page Ref: 597

62) Describe why autonomous trucks would have a massive disruptive effect on jobs in the transportation industry.

Answer: Truck based transportation in the US provides a significant number of jobs throughout the country. If autonomous trucks were approved and deployed this would have a massive disruptive effect on the industry. Many would argue that autonomous trucking would be less expensive and safer than trucks driven by humans, and thus would be adopted significantly by corporations. This would displace a large portion of the workforce, and that would have negative economic effects.

Diff: 2 Page Ref: 600

63) List the current categories of challenges with autonomous cars.

Answer: Current challenges with autonomous vehicles can be grouped into four major categories:

- challenges with technology
- environmental challenges
- regulatory challenges
- public trust issues

Diff: 2 Page Ref: 599-600

64) Research the concept of UBI. Do you feel that UBI is a valid solution to the growth of robotics in US jobs?

Answer: Student research and positions will vary greatly.

Diff: 3 Page Ref: 602

65) There are several legal and moral issues associated with the growth of robotics and AI in law enforcement. Discuss the major concerns and implications.

Answer: Students will select and analyze different issues.

Diff: 3 Page Ref: 605

66) Paro is a social robot for older adults. What have the results of studies on this type of robot sound?

Answer: The results showed that social robots like Paro increase the social interaction. Paro not only brought smiles to patients' faces but also some vivid, happy experiences to occupants. Even though Paro did not provide a complete response that humans do, many patients found the responses meaningful and connected emotionally to it. These robots can help break the monotonous routine of older adults and add some joy to their lives.

Diff: 2 Page Ref: 583

67) How do you feel that the shift from automation to its autonomy will affect robotics development?

Answer: Student opinions and answers will vary greatly. The discussion will likely focus on how the shift to autonomy will greatly increase the possible roles for robots and greatly extend the types of functions that they are able to perform.

Diff: 2 Page Ref: 584

68) Give an example of a robot being used in a situation that would be too dangerous for human.

Answer: Student selections will vary, but could include space missions, research in the deep ocean or on volcanoes, or manufacturing in dangerous locations.

Diff: 2 Page Ref: 585

69) Discuss some of the security concerns surrounding the Pepper robot.

Answer: Pepper has several security concerns that were pointed out by Scandinavian researchers. According to them, it is easy to have unauthenticated root-level access to the bot. They also found the robot to be prone to brute force attack. Pepper's functions can be programmed using various application programming interfaces (APIs) through languages such as Python, Java, and C++. This feature can cause it to provide access to all its sensors, making it not secure. An attacker can establish a connection and then use Pepper's mic, camera, and other features to spy on people and their conversations. This is an ongoing issue for many robots and smart speakers.

Diff: 2 Page Ref: 592

70) List the major components of a robot.

Answer: The common components of a robot include:

- power controller
- sensors
- effectors (or rover or manipulator)
- navigation (or actuator system)
- controller/CPU

Diff: 2 Page Ref: 596

1) There can be synergy (leading to process and task gains) or conflict in groupwork.

Answer: TRUE

Diff: 2 Page Ref: 613

2) Groups are not usually involved in making team or organizational decisions.

Answer: FALSE

Diff: 1 Page Ref: 614

3) The members of a group can be in one place, meeting face-to-face, or they can be a virtual team.

Answer: TRUE

Diff: 1 Page Ref: 615

4) When information is sent and received almost simultaneously, the communication is in asynchronous (real-time) mode.

Answer: FALSE

Diff: 2 Page Ref: 617

5) Studies indicate that adopting collaboration technologies increases productivity.

Answer: TRUE

Diff: 2 Page Ref: 618

6) Social collaboration is usually done on email.

Answer: FALSE

Diff: 2 Page Ref: 622

7) The goal of collaborative workflow tools is to empower knowledge workers.

Answer: TRUE

Diff: 2 Page Ref: 621

8) GDSS generally provides structure to the meeting planning process, which keeps a group meeting on track, although some applications permit the group to use unstructured techniques and methods for idea generation.

Answer: TRUE

Diff: 2 Page Ref: 624

9) CCI studies have indicated that when people and computers work together for teams to solve problems, they tend to be less innovative than when working alone.

Answer: FALSE

Diff: 2 Page Ref: 629

10) Collective intelligence can only be supported by three specific platforms.

Answer: FALSE

Diff: 2 Page Ref: 629

11) The LEGO company has a platform called LEGO Ideas through which users can submit ideas for new LEGO sets and vote on submitted ideas by the crowd.

Answer: TRUE

Diff: 2 Page Ref: 633

12) When people are creating various types of content and sharing it with others (for pay or free), this is an example of crowd voting.

Answer: FALSE

Diff: 2 Page Ref: 634

13) Crowds can provide ideas in a collaborative or a competitive mode. However, the crowd's role may differ at different stages of the decision-making process.

Answer: TRUE

Diff: 2 Page Ref: 635

14) There is no need for a company to use an outside vendor when implementing a crowdsourcing project for problem-solving.

Answer: FALSE

Diff: 3 Page Ref: 635

15) The term swarm intelligence refers to the collective behavior of centralized, intentionally organized systems.

Answer: FALSE

Diff: 2 Page Ref: 639

16) To assist in meeting preparation, AI is used to find a convenient time for meetings to take place. AI can assist in scheduling meetings so that all can participate.

Answer: TRUE

Diff: 2 Page Ref: 637

17) In group decision making, a virtual team is one that meets in one geographical location using information technology.

Answer: FALSE

Diff: 2 Page Ref: 615

18) To assist in predictions, natural language processing (NLP) can be used to sort ideas and organize them for improved evaluation.

Answer: FALSE

Diff: 2 Page Ref: 637

19) Internet- and intranet-based group decision support systems (GDSS) are less popular than special-purpose decision rooms.

Answer: FALSE

Diff: 1 Page Ref: 624

20) Advancement in AI enables the automation of nonmanual activities.

Answer: TRUE

Diff: 2 Page Ref: 641

21) Which of the following is not a step in the group decision-making process?

- A) select participants for the meeting
- B) generate alternative ideas (brainstorm)
- C) seek outside input
- D) evaluate the ideas, discuss, and brainstorm

Answer: C

Diff: 3 Page Ref: 614

22) Which of the following is not a benefit of working in a group?

- A) meetings may be dominated by the opinions of a few individuals
- B) some members may be afraid to speak up
- C) there is often nonproductive time
- D) risk propensity is balanced

Answer: D

Diff: 2 Page Ref: 616

23) Which of the following is a benefit of working in a group?

- A) meetings may be dominated by the opinions of a few individuals
- B) some members may be afraid to speak up
- C) there is often nonproductive time
- D) risk propensity is balanced

Answer: D

Diff: 2 Page Ref: 616

24) Which of the following is a benefit of working in a group?

- A) social pressures of conformity
- B) it is a time consuming slow process
- C) there is often nonproductive time
- D) creativity may be stimulated

Answer: D

Diff: 2 Page Ref: 616

25) Which type of tool would not be appropriate for same time/same place interaction?

- A) instant messaging
- B) decision room
- C) whiteboard
- D) email

Answer: D

Diff: 2 Page Ref: 618

26) Which type of tool would not be appropriate for different time/same place interaction?

- A) web-based GSS
- B) document sharing
- C) videoconferencing playback
- D) voice memo

Answer: D

Diff: 2 Page Ref: 618

27) Which type of tool would not be appropriate for different time/different place interaction?

- A) web-based GSS
- B) virtual whiteboard
- C) videoconferencing playback
- D) chatting

Answer: D

Diff: 2 Page Ref: 618

28) Which of the following is not a synchronous groupware software application?

- A) IM
- B) videoconferences
- C) tweets
- D) instant videos

Answer: C

Diff: 2 Page Ref: 620

29) Which of the following is not a asynchronous groupware software application?

- A) tweets
- B) joint webpage creation
- C) virtual workspaces
- D) email

Answer: B

Diff: 2 Page Ref: 620

30) Which of the following is not one of the ways to categorize CI into a major area of application?

- A) cognition
- B) cooperation
- C) communication
- D) coordination

Answer: C

Diff: 2 Page Ref: 629

31) Alibaba.com is using teams of robots in its:

- A) product design.
- B) logistics.
- C) product assembly.
- D) smart warehouses.

Answer: D

Diff: 2 Page Ref: 643

32) Distractions, groupthink, and digressions that occur in groupwork are known as:

- A) malfunctions.
- B) process losses.
- C) misunderstandings.
- D) group failure.

Answer: B

Diff: 2 Page Ref: 615

33) All the following are negative aspects of working in groups EXCEPT:

- A) there can be a lack of coordination.
- B) it is time-consuming.
- C) participants may be afraid to contribute.
- D) it is more difficult to catch errors.

Answer: D

Diff: 2 Page Ref: 615-16

34) Videoconferencing is an example of what kind of groupware?

- A) same time, same place
- B) same time, different place
- C) different time, same place
- D) different time, different place

Answer: B

Diff: 2 Page Ref: 617

35) Which of the following is the best example of asynchronous communication?

- A) multimedia presentation system
- B) teleconference
- C) videoconference
- D) e-mail

Answer: D

Diff: 2 Page Ref: 617

36) Which groupware tools are associated with synchronous use?

- A) e-mail and web conferencing
- B) VoIP and wikilogs
- C) VoIP and instant messaging
- D) Web conference and online workspaces

Answer: C

Diff: 2 Page Ref: 619

37) A Group Support System is characterized by all of the following EXCEPT:

- A) Designed to enhance group work.
- B) Improve the quality of virtual meetings.
- C) Describes software systems only.
- D) Designed to maximize collaboration.

Answer: C

Diff: 2 Page Ref: 628

38) What is the major difference between group support systems (GSS) and group decision support systems (GDSS)?

- A) GSS use modern technology; GDSS do not.
- B) GDSS have a narrower focus than GSS.
- C) GSS use Web based technologies; GDSS do not.
- D) GDSS do not support virtual teams, but GSS do.

Answer: B

Diff: 2 Page Ref: 624

39) What software or facility is best for a small firm spread out across the Northeast U.S. looking to inexpensively conduct regular videoconferencing?

- A) Excel
- B) decision rooms
- C) SharePoint
- D) WebEx

Answer: D

Diff: 2 Page Ref: 625

40) Swarm AI (or AI swarm) provides what one needed component for the interconnections among people creating the human swarm?

- A) algorithms
- B) ideas
- C) data
- D) all of these

Answer: A

Diff: 2 Page Ref: 639

41) Social pressures of conformity may result in \_\_\_\_\_ (i.e., people begin to think alike and not tolerate new ideas; they yield to conformance pressure).

Answer: groupthink

Diff: 2 Page Ref: 615

42) The outcome of a meeting depends partly on the knowledge, opinions, and \_\_\_\_\_ of its participants and the support they give to the outcome.

Answer: judgments

Diff: 1 Page Ref: 615

43) In addition to making decisions, groups also support decision-making subprocesses such as \_\_\_\_\_.

Answer: brainstorming

Diff: 1 Page Ref: 618

44) Groups and group work in organizations are \_\_\_\_\_.

Answer: proliferating

Diff: 2 Page Ref: 618

45) The advancement of Web-based systems opens the door for improved electronically supported \_\_\_\_\_ with the virtual team members in different locations, even in different countries.

Answer: virtual meetings

Diff: 2 Page Ref: 620

46) The earliest GDSS was installed in expensive, customized, special purpose facilities called \_\_\_\_\_.

Answer: decision rooms

Diff: 2 Page Ref: 625

47) Swarm intelligence consist of things (e.g., ants, people) \_\_\_\_\_ with each other and their environment.

Answer: interacting

Diff: 2 Page Ref: 639

48) A major task of managers is \_\_\_\_\_, which has become one area of human—machine collaboration.

Answer: decision making

Diff: 2 Page Ref: 641

49) Groupwork may have both potential benefits and potential drawbacks. The benefits of working in groups are called \_\_\_\_\_.

Answer: process gains

Diff: 2 Page Ref: 615

50) Any combination of hardware and software that enhances group work may be described as a \_\_\_\_\_.

Answer: group support system (GSS)

Diff: 1 Page Ref: 628

51) Many computerized tools have been developed to provide group support. These tools are called \_\_\_\_\_ because their primary objective is to support groupwork.

Answer: groupware

Diff: 1 Page Ref: 619

52) If a groupware tool has \_\_\_\_\_ features, it means that communication and collaboration using that tool are done in real time.

Answer: synchronous

Diff: 1 Page Ref: 619

53) \_\_\_\_\_ refers to software products that address project-oriented and collaborative types of processes.

Answer: Collaborative workflow

Diff: 2 Page Ref: 621

54) The earliest GDSS was installed in expensive, customized, special purpose facilities called \_\_\_\_\_ that had PCs and a large public screen at the front of each room.

Answer: decision rooms

Diff: 1 Page Ref: 625

55) A type of crowdsourcing where people are giving their opinions and ratings on ideas, products, or services, as well as evaluating and filtering information presented to them is \_\_\_\_\_.

Answer: crowd voting

Diff: 2 Page Ref: 634

56) \_\_\_\_\_ refers to outsourcing tasks to a large group of people (crowd). One of the major reasons for doing so is the potential for the wisdom of a crowd to improve decision making and assist in solving difficult problems.

Answer: Crowdsourcing

Diff: 1 Page Ref: 633

57) A group support system (GSS) is any combination of hardware and \_\_\_\_\_ that enhances groupwork.

Answer: software

Diff: 2 Page Ref: 628

58) \_\_\_\_\_ refers to the total intelligence of a group.

Answer: Collective intelligence (CI)

Diff: 2 Page Ref: 629

59) The earliest GDSS were installed in expensive, customized, special- purpose facilities called \_\_\_\_\_ rooms, with PCs and large public screens at the front of each room.

Answer: decision/electronic meeting

Diff: 2 Page Ref: 624

60) \_\_\_\_\_ provides the algorithms for the interconnections among people creating the human swarm.

Answer: Swarm AI

Diff: 2 Page Ref: 639

61) list the steps in the group decision-making process

Answer:

Step 1. Prepare for meetings regarding the agenda, time, place, participants, and schedule.

Step 2. Determine the topic of the meeting (e.g., problem definition).

Step 3. Select participants for the meeting.

Step 4. Select criteria for evaluating the alternatives and the selected solution.

Step 5. Generate alternative ideas (brainstorm).

Step 6. Organize the ideas generated into similar groups.

Step 7. Evaluate the ideas, discuss, and brainstorm.

Step 8. Select a short list (finalists).

Step 9. Select a recommended solution.

Step 10. Plan implementation of the solution.

Step 11. Implement the solution.

Diff: 2 Page Ref: 614-15

62) List the technologies that would be appropriate for same time/different place in the time/place framework.

Answer:

- Web-based GSS
- Virtual whiteboard
- Document sharing
- Videoconferencing
- Audio-conferencing
- Computer conferencing
- E-mail, V-mail
- Virtual workspace

Diff: 2 Page Ref: 618

63) List and briefly describe the major vendors of virtual workspaces.

Answer:

- Google Cloud Platform is deployed on the "cloud," so it is offered as a platform-as-a-service (PaaS). Google is also known for its Flexible Workspace product.
- Citrix Workspace Cloud is also deployed on the "cloud." Citrix is known for its GoToMeeting collaboration tool. Citrix Workspace Cloud users can manage secure digital workplaces on Google Cloud.
- Microsoft Workspace is part of Office 365.
- Cisco's Webex, a popular collaboration package including Meeting.
- Slack workspace is a very popular workspace.

Diff: 2 Page Ref: 621

64) For effective collaborative intelligence to take place, Coleman (2011) stipulates that group collaboration must have several components. List 10 of these components:

Answer:

1. willingness to share
2. knowing how to share
3. being willing to collaborate
4. knowing what to share
5. knowing how to build trust
6. understanding team dynamics
7. using correct hubs for networking
8. mentoring and coaching properly
9. being open to new ideas
10. using computerized tools and technology

Diff: 3 Page Ref: 632

65) List and briefly describe the major types of crowdsourcing.

Answer:

1. Collective intelligence (or wisdom). People in crowds are solving problems and providing new insights and ideas leading to product, process, or service innovations.
2. Crowd creation. People are creating various types of content and sharing it with others (for pay or free). The created content may be used for problem solving, advertising, or knowledge accumulation. Content creation can also be done by splitting large tasks into small segments (e.g., contributing content to create Wikipedia).
3. Crowd voting. People are giving their opinions and ratings on ideas, products, or services, as well as evaluating and filtering information presented to them. An example is voting in American Idol competitions.
4. Crowd support and funding. People are contributing and supporting endeavors for social or business causes, such as offering donations, and micro-financing new ventures.

Diff: 3 Page Ref: 633-34

66) Discuss the challenges that must be considered when creating human/robot collaborations.

Answer: The following challenges must be considered:

- Designing a human—machine team that capitalizes on the strength of each partner.
- Exchanging information between humans and robots.
- Preparing company employees in all departments for the collaboration (Marr, 2017).
- Changing business processes to accommodate human—robot collaboration (Moran, 2018).
- Ensuring the safety of robots and employees that work together.

Diff: 3 Page Ref: 642

67) Briefly describe three benefits (process gains) derived from working in groups.

Answer:

- It provides learning. Groups are better than individuals at understanding problems.
- People readily take ownership of problems and their solutions. They take responsibility.
- Group members have their egos embedded in the decision, so they are committed to the solution.
- Groups are better than individuals at catching errors.
- A group has more information (i.e., knowledge) than any one member. Group members can combine their knowledge to create new knowledge. More and more creative alternatives for problem solving can be generated, and better solutions can be derived (e.g., through stimulation).
- A group may produce synergy during problem solving. The effectiveness and/or quality of group work can be greater than the sum of what is produced by independent individuals.
- Working in a group may stimulate the creativity of the participants and the process.
- A group may have better and more precise communication working together.
- Risk propensity is balanced. Groups moderate high-risk takers and encourage conservatives.

Diff: 2 Page Ref: 615-16

68) Groupware products provide a way for groups to share resources and opinions. Groupware implies the use of networks to connect people, even if they are in the same room. What are three general features of groupware products that support communication, collaboration, and coordination?

Answer:

- Built-in e-mail, messaging system
- Browser interface
- Joint Web-page creation
- Sharing of active hyperlinks
- File sharing (graphics, video, audio, or other)
- Built-in search functions (by topic or keyword)
- Workflow tools
- Use of corporate portals for communication, collaboration, and search
- Shared screens
- Electronic decision rooms
- Peer-to-peer networks

Diff: 3 Page Ref: 620

69) A group decision support system (GDSS) is an interactive computer-based system that facilitates the solution of semi structured or unstructured problems by a group of decision makers. What are the major characteristics of a GDSS?

Answer:

- Its goal is to support the process of group decision makers by providing automation of sub processes, using information technology tools.
- It is a specially designed information system, not merely a configuration of already existing system components. It can be designed to address one type of problem or a variety of group-level organizational decisions.
- It encourages generation of ideas, resolution of conflicts, and freedom of expression. It contains built-in mechanisms that discourage development of negative group behaviors, such as destructive conflict, miscommunication, and groupthink.

Diff: 2 Page Ref: 624

70) A group support system (GSS) is any combination of hardware and software that enhances group work either in direct or indirect support of decision making. When and how did GSS evolve?

Answer: GSS evolved after information technology researchers recognized that technology could be developed to support the many activities normally occurring at face-to-face meetings (e.g., idea generation, consensus building, and anonymous ranking).

Diff: 2 Page Ref: 624

***Analytics, Data Science, & Artificial Intelligence, 11e (Sharda)***

**Chapter 12 Knowledge Systems: Expert Systems, Recommenders, Chatbots, Virtual Personal Assistants, and Robo Advisors**

1) In the Sephora case, the company found that the use of chat bots was off-putting to potential customers.

Answer: FALSE

Diff: 2 Page Ref: 649

2) There are several definitions of expert systems.

Answer: TRUE

Diff: 1 Page Ref: 650

3) The use of expert systems has grown rapidly since 2011.

Answer: FALSE

Diff: 1 Page Ref: 652

4) Recommendation systems are very common and are used in many areas.

Answer: TRUE

Diff: 2 Page Ref: 657

5) Classical ES systems are based on machine learning algorithms.

Answer: FALSE

Diff: 2 Page Ref: 656

6) 60 percent of millennials have already used chatbots and 53 percent of those who have not used them are interested in doing so.

Answer: TRUE

Diff: 2 Page Ref: 660

7) Millennial's are the only generation using chatbots.

Answer: FALSE

Diff: 2 Page Ref: 660

8) Regular bots have a knowledge base that improves with experience.

Answer: FALSE

Diff: 2 Page Ref: 661

9) A major limitation of the older types of bots was that updating their knowledge base was both slow and expensive.

Answer: TRUE

Diff: 2 Page Ref: 661

10) The use of chat bots requires companies to utilize a large team of customer service professionals.

Answer: FALSE

Diff: 2 Page Ref: 661

11) Chatbots allow rapid growth of service operations without the need to hire and train many customer service employees.

Answer: TRUE

Diff: 2 Page Ref: 661

12) The need to cut costs is not a major driver of the growth of chatbots.

Answer: FALSE

Diff: 2 Page Ref: 663

13) Chatbots and similar AI machines have been improved over time.

Answer: TRUE

Diff: 2 Page Ref: 663

14) The ability to converse in different languages is a benefit to the use of chat bots.

Answer: TRUE

Diff: 3 Page Ref: 663

15) LinkedIn is introducing chatbots that conduct tasks such as comparing the calendars of people participating in meetings and suggesting meeting times and places.

Answer: TRUE

Diff: 2 Page Ref: 665

16) Due to its highly personalized nature, chatbots cannot be used in education.

Answer: FALSE

Diff: 2 Page Ref: 668

17) VPAs are basically extensions of intelligent software agents that interact with people.

Answer: TRUE

Diff: 2 Page Ref: 672

18) VPAs do not integrate the use of voice commands.

Answer: FALSE

Diff: 2 Page Ref: 672

19) As robo advisors matured, it became clear that sometimes they could do an effective job by themselves.

Answer: FALSE

Diff: 1 Page Ref: 676

20) There are no free sources for building chatbots.

Answer: FALSE

Diff: 2 Page Ref: 682

21) What is the extensive, task-specific knowledge that experts possess?

- A) gravitas
- B) understanding
- C) expertise
- D) credibility

Answer: C

Diff: 3 Page Ref: 651

22) A less common subsystem of an expert system that shows users of rule-based systems the chains of rules used to arrive at conclusions is called:

- A) interference engine.
- B) refining subsystem.
- C) user interface.
- D) justifier/explanation.

Answer: D

Diff: 2 Page Ref: 654

23) What part of an expert system provides the reasoning capability, namely the ability to answer users' questions, provide recommendations for solutions, generate predictions, and conduct other relevant tasks?

- A) knowledge acquisition
- B) knowledge representation
- C) user interface
- D) inference engine

Answer: D

Diff: 2 Page Ref: 654

24) What part of an expert system is divided into knowledge about the domain and knowledge about problem solving and solution procedures?

- A) knowledge acquisition
- B) knowledge base
- C) user interface
- D) inference engine

Answer: B

Diff: 2 Page Ref: 653-4

25) What part of an expert system is frequently organized as business rules?

- A) knowledge acquisition
- B) knowledge representation
- C) user interface
- D) interference engine

Answer: B

Diff: 2 Page Ref: 653-4

26) Which of the following is not a top application for recommendation systems?

- A) movies
- B) music
- C) books
- D) software

Answer: D

Diff: 2 Page Ref: 657

27) Which of the following is not a benefit to customers of a recommendation system?

- A) personalization
- B) discovery
- C) customer satisfaction
- D) higher conversion rate

Answer: D

Diff: 2 Page Ref: 658

28) Which of the following is not a benefit to sellers of a recommendation system?

- A) increased cross-sell
- B) increased customer loyalty
- C) personalization
- D) enabling mass customization

Answer: C

Diff: 2 Page Ref: 658

29) This technique allows vendors to identify preferences by the attributes of the product(s) that customers have bought or intend to buy.

- A) collaborative filtering
- B) content-based filtering
- C) deep learning
- D) personalization

Answer: B

Diff: 2 Page Ref: 658

30) This method builds a model that summarizes the past behavior of shoppers, how they surf the Internet, what they were looking for, what they have purchased, and how much they like (rate) the products.

- A) collaborative filtering
- B) content-based filtering
- C) deep learning
- D) personalization

Answer: A

Diff: 2 Page Ref: 658

31) Which of the following types of bots do simple repetitive tasks for their owners?

- A) regular bots
- B) chatbots
- C) intelligent bots
- D) deep learning robots

Answer: A

Diff: 2 Page Ref: 661

32) Which of the following types of bots simulate conversations with people?

- A) regular bots
- B) chatbots
- C) intelligent bots
- D) deep learning robots

Answer: B

Diff: 2 Page Ref: 661

33) Which of the following types of bots have a knowledge base that improves with experience?

- A) regular bots
- B) chatbots
- C) intelligent bots
- D) deep learning robots

Answer: C

Diff: 2 Page Ref: 661

34) Which of the following is not a benefit of the use of chatbots?

- A) decreased cost
- B) reduced quality but increased quantity
- C) use in foreign language translation
- D) used to facilitate shopping

Answer: B

Diff: 2 Page Ref: 663

35) This software agent helps people improve their work, assist in decision making, and facilitate their lifestyle.

- A) chatbot
- B) enterprise chatbot
- C) deep AI
- D) virtual personal assistant

Answer: D

Diff: 2 Page Ref: 672

36) Which of the following is not a component of chatbots?

- A) AI machine
- B) knowledge base
- C) robot manipulators
- D) human-computer interface

Answer: C

Diff: 2 Page Ref: 662

37) Which of the following is a function that cannot be completed by Amazon's Alexa?

- A) answer questions in several domains
- B) make to do lists
- C) play audiobooks
- D) interface with self-driving cars

Answer: D

Diff: 2 Page Ref: 673

38) What is the hardware companion of Amazon's Alexa software product?

- A) Nest
- B) Echo
- C) Siri
- D) Chrome

Answer: B

Diff: 2 Page Ref: 674

39) Which of the following is not a limitation of bots?

- A) inferior performance
- B) poor brand representation
- C) inconvenient use
- D) cost

Answer: D

Diff: 2 Page Ref: 681

40) The company that led the implementation of robo advisors was:

- A) Betterment.
- B) Wealthfront.
- C) Schwab.
- D) E\*Trade.

Answer: A

Diff: 2 Page Ref: 676

41) An \_\_\_\_\_ this is the "brain" of ES.

Answer: inference engine

Diff: 1 Page Ref: 654

42) A nonexpert uses the \_\_\_\_\_ environment to obtain advice and solve problems using the expert knowledge embedded into the expert system.

Answer: consultation

Diff: 1 Page Ref: 653

43) \_\_\_\_\_ is the extensive, task-specific knowledge that experts possess.

Answer: Expertise

Diff: 1 Page Ref: 651

44) A heavily used knowledge system for recommending one-to-one targeted products or services is the \_\_\_\_\_ system.

Answer: recommendation

Diff: 2 Page Ref: 657

45) An ES builder builds the necessary ES components and loads the knowledge base with appropriate representation of expert knowledge in the \_\_\_\_\_ environment.

Answer: development

Diff: 2 Page Ref: 653

46) In an ES, knowledge acquisition is mostly from \_\_\_\_\_.

Answer: human experts

Diff: 2 Page Ref: 653

47) A \_\_\_\_\_ is a computerized service that enables easy conversations between humans and humanlike computerized robots or image characters, sometimes over the Internet.

Answer: chatbot

Diff: 2 Page Ref: 660

48) More intelligent chatbots are equipped with \_\_\_\_\_, so the computer can understand unstructured dialog.

Answer: NLPs

Diff: 2 Page Ref: 660

49) Knowledge bases are updated today in the \_\_\_\_\_ in a central location; the knowledge is shared by many users so the cost per user is reduced.

Answer: cloud

Diff: 2 Page Ref: 661

50) Demand for chatbots is \_\_\_\_\_ due to their potential cost reduction and improved customer service.

Answer: growing

Diff: 1 Page Ref: 661

51) The benefits of chatbots to enterprises are increasing rapidly, making \_\_\_\_\_ less expensive and more consistent.

Answer: dialog

Diff: 1 Page Ref: 664

52) A study conducted in 2016 found that \_\_\_\_\_ percent of businesses want chatbots by 2020.

Answer: 80

Diff: 1 Page Ref: 664

53) In addition to the marketing areas, plenty of chatbots are in areas such as \_\_\_\_\_ (e.g., banks) and HRM services.

Answer: financial

Diff: 2 Page Ref: 665

54) Amazon Echo \_\_\_\_\_ is the "little brother" of Echo. It offers full Alexa functionality but has only one very small speaker.

Answer: Dot

Diff: 1 Page Ref: 674

55) \_\_\_\_\_ is an intelligent virtual personal assistant and knowledge navigator from Apple.

Answer: Siri

Diff: 2 Page Ref: 675

56) \_\_\_\_\_ is expected to be the next generation of intelligent virtual interactions and was developed by Dag Kittlaus, the creator of Siri.

Answer: Viv

Diff: 1 Page Ref: 675

57) When the knowledge base is centralized, its \_\_\_\_\_ is performed in one place. This is in contrast with the knowledge of many enterprise bots, for which updating is decentralized.

Answer: maintenance

Diff: 2 Page Ref: 675

58) \_\_\_\_\_ are defined as online providers that offer automated, low-cost, personalized investment advisory services, usually through mobile platforms.

Answer: Robo advisors

Diff: 2 Page Ref: 676

59) Robo advising companies try to cut costs by using \_\_\_\_\_, whose commission fees are significantly lower than that of mutual funds.

Answer: ETFs

Diff: 2 Page Ref: 676

60) The quality of chatbots that retrieve information for users and are properly programmed can do a \_\_\_\_\_ job.

Answer: perfect

Diff: 2 Page Ref: 681

61) List and briefly describe the typical areas of ES applications.

Answer: ES have been applied commercially in a number of areas, including the following:

- Finance. Finance ES include analysis of investments, credit, and financial reports; evaluation of insurance and performance; tax planning; fraud prevention; and financial planning.
- Data processing. Data processing ES include system planning, equipment selection, equipment maintenance, vendor evaluation, and network management.
- Marketing. Marketing ES include customer relationship management, market research and analysis, product planning, and market planning. Also, presale advice is provided for prospects.
- Human resources. Examples of human resource ES are planning, performance evaluation, staff scheduling, pension management, regulatory advising, and design of questionnaires.
- Manufacturing. Manufacturing ES include production planning, complex product configuration, quality management, product design, plant site selection, and equipment maintenance and repair (including diagnosis).
- Homeland security. These ES include terrorist threat assessment and terrorist finance detection.
- Business process automation. ES have been developed for desk automation, call center management, and regulation enforcement.
- Healthcare management. ES have been developed for bioinformatics and other healthcare management issues.
- Regulatory and compliance requirements. Regulations can be complex. ES are using a stepwise process to ensure compliance.
- Web site design. A good Web site design requires paying attention to many variables and ensures that performance is up to standard. ES can lead to a proper design process.

Diff: 2 Page Ref: 653

62) List and briefly describe the major components of expert systems.

Answer: The major components in typical expert systems include:

- Knowledge acquisition. Mostly from human experts, is usually obtained by knowledge engineers. This knowledge, which may derive from several sources, is integrated, validated, and verified.
- Knowledge base. This is a knowledge repository. The knowledge is divided into knowledge about the domain and knowledge about problem solving and solution procedures. Also, the input data provided by the users may be stored in the knowledge base.
- Knowledge representation. This is frequently organized as business rules (also known as production rules).
- Inference engine. Also known as the control structure or the rule interpreter, this is the "brain" of ES. It provides the reasoning capability, namely the ability to answer users' questions, provide recommendations for solutions, generate predictions, and conduct other relevant tasks. The engine manipulates the rules by either forward chaining or backward chaining. In 1990s ES started to use other inference methods.
- User interface. This component allows user inference engine interactions. In classical ES, this was done in writing or by using menus. In today's knowledge systems, it is done by natural languages and voice.

Diff: 3 Page Ref: 653-4

63) Discuss the reasons why the classical type of expert systems is disappearing

Answer:

1. The acquisition of knowledge from human experts has proven to be very expensive due to the shortage of good knowledge engineers as well as the possible need to interview several experts for one application.
2. Any acquired knowledge needed to be updated frequently at a high cost.
3. The rule-based foundation was frequently not robust and not too reliable or flexible and could have too many exceptions to the rules. Improved knowledge systems use data-driven and statistical approaches to make the inferences with better success. In addition, case-based reasoning could work better only if a sufficient number of similar cases were available. So, usually it cannot support ES.
4. The rule-based user-interface needed to be supplemented (e.g., by voice communication, image maps). This could make ES too cumbersome.
5. The reasoning capability of rule-based technology is limited compared to use of newer mechanisms such as those used in machine learning.

Diff: 2 Page Ref: 655-6

64) List and briefly describe the three classes of bots.

Answer: Bots can be classified by their capabilities; three classes follow:

1. Regular bots. These are essentially conversational intelligent agents. They can do simple, usually repetitive, tasks for their owners, such as showing their bank's debits, helping them to purchase goods online, and to sell or buy stocks online.
2. Chatbots. In this category, we include more capable bots, for example, those that can stimulate conversations with people. This chapter deals mainly with chatbots.
3. Intelligent bots. These have a knowledge base that is improving with experience. That is, these bots can learn, for example, a customer's preferences.

Diff: 3 Page Ref: 661

65) List the major components of chatbots.

Answer: The major components are:

- A person (client).
- A computer, avatar, or robot (the AI machine).
- A knowledge base that can be embedded in the machine or available and connected to the "cloud."
- A human-computer interface that provides the dialog for written or voice modes.
- An NLP that enables the machine to understand natural language.

Diff: 3 Page Ref: 662

66) Give an example of an enterprise chat bot and discuss how it is used.

Answer: Student selection of an example will vary, but could include LinkedIn, MasterCard or Coca-Cola.

Diff: 3 Page Ref: 665-6

67) List at least five representative examples of chatbot tasks inside an enterprise.

Answer: Representative examples of chatbot tasks are:

- Help with project management.
- Handle data entry.
- Conduct scheduling.
- Streamline payments with partners.
- Advise on authorization of funds.
- Monitor work and workers.
- Analyze internal Big Data.
- Find discounted and less expensive products.
- Simplify interactions.
- Facilitate data-driven strategy.
- Use machine learning.

Diff: 2    Page Ref: 670

68) Select one of the virtual personal assistants discussed in the chapter (like Alexa, Siri or Viv) and discuss its features.

Answer: Student selection of the technology will vary, and so will the features available in each.

Diff: 3    Page Ref: 673-5

69) What are the components of a shopping advisor?

Answer:

1. Product intelligence, which processes complex and diverse product data. It includes a competitive analysis.
2. Context intelligence, which collects and catalogs contextual data points about marketing facilities and inventories in different locations.
3. Shopper intelligence, which studies consumers' actions related to different magazines, mobile apps, and Web sites.

Diff: 2    Page Ref: 679

70) List and briefly discuss some of the disadvantages and limitations of bots.

Answer:

- Some bots provide inferior performance, at least during their initiation, making users frustrated.
- Some bots do not properly represent their brand. Poor design may result in poor representation.
- The quality of AI-based bots depends on the use of complex algorithms that are expensive to build and use.
- Some bots are not convenient to use.
- Some bots operate in an inconsistent manner.
- Enterprise chatbots pose great security and integration challenges.

Diff: 2    Page Ref: 681

1) In the opening case, it was identified that CNH's primary interest in IoT was to collect equipment usage information for future product development.

Answer: FALSE

Diff: 2 Page Ref: 688

2) IoT can collect information on vehicle use to predict potential nonroutine maintenance needed.

Answer: TRUE

Diff: 2 Page Ref: 688

3) The definition of IoT is changing and evolving over time.

Answer: TRUE

Diff: 2 Page Ref: 689

4) More sophisticated IoT applications require a control system and a business model in addition to objects and devices.

Answer: TRUE

Diff: 2 Page Ref: 691

5) There may be between 20 to 50 billion things connected to the Internet by 2020-2025.

Answer: TRUE

Diff: 2 Page Ref: 695

6) The availability of broadband Internet and cellular service is shrinking, which may be an issue for IoT.

Answer: FALSE

Diff: 2 Page Ref: 695

7) By connecting many devices that can talk to each other, one can create applications with new functionalities, increase the productivity of existing systems.

Answer: TRUE

Diff: 2 Page Ref: 690

8) The IoT may generate a huge amount of data that needs to be analyzed by various business intelligence methods, including deep learning, or advanced AI methods.

Answer: TRUE

Diff: 2 Page Ref: 696

9) There are several types of sensors and several methods for collecting data.

Answer: TRUE

Diff: 2 Page Ref: 697

10) Sensors with longer ranges are typically more reliable than those that operate within short ranges.

Answer: FALSE

Diff: 2 Page Ref: 697

11) As an example of the potential IoT system, one day refrigerators may place orders for items that need replenished.

Answer: TRUE

Diff: 2 Page Ref: 701

12) Using an IOT system, Hilton Hotels allows guests to check in directly using their smart phones without going to the lobby and getting a key.

Answer: TRUE

Diff: 2 Page Ref: 701

13) A smart home is a home with automated components that are interconnected.

Answer: TRUE

Diff: 2 Page Ref: 703

14) Most existing homes are not yet smart, but they can easily and inexpensively be equipped to for at least partial smartness.

Answer: TRUE

Diff: 2 Page Ref: 703

15) Most of the technologies used for smart cities are based on physical Internet connections.

Answer: FALSE

Diff: 2 Page Ref: 707

16) The transition to becoming a smart city is generally rapid and trouble-free once the decision is made to proceed.

Answer: FALSE

Diff: 2 Page Ref: 708

17) Self driving cars are also referred to as autonomous vehicles.

Answer: TRUE

Diff: 2 Page Ref: 714

18) The initial efforts to commercialize a self-driving car were started by IBM in the 1980s.

Answer: FALSE

Diff: 1 Page Ref: 714

19) IoT is generally well accepted, and no major implementation issues currently exist.

Answer: FALSE

Diff: 2 Page Ref: 718

20) There are millions of silos of data on the Internet and many of them need to be interconnected in specific IoT applications.

Answer: TRUE

Diff: 2 Page Ref: 718

21) In the CNH case which of the following did the IoT system not perform:

- A) monitor vehicle condition.
- B) monitor the external environment around vehicles.
- C) alert owners to sales and options to purchase new equipment.
- D) alert owners to needs and timing of preventative maintenance.

Answer: C

Diff: 2 Page Ref: 688

22) Which of the following is not an example of an IOT application (vertical)?

- A) personal
- B) home
- C) connectivity
- D) vehicles

Answer: C

Diff: 2 Page Ref: 692

23) Which of the following is not an example of an IOT platform and enablement (horizontals)?

- A) partners
- B) software
- C) enterprise
- D) hardware

Answer: C

Diff: 2 Page Ref: 692

24) In this part of IoT, data are turned into meaningful information.

- A) hardware
- B) connectivity
- C) software backend
- D) applications

Answer: D

Diff: 2 Page Ref: 693

25) In relationship to the tracking of activities, a major benefit of the IOT is that it offers the potential for:

- A) quick and inexpensive tracking of activities.
- B) quick but expensive tracking of activities.
- C) slow but inexpensive tracking of activities.
- D) slow and expensive tracking of activities.

Answer: A

Diff: 1 Page Ref: 694

26) The IoT can provide better knowledge for customers to improve:

- A) personalized services.
- B) marketing.
- C) A and B
- D) none of these

Answer: C

Diff: 2 Page Ref: 694

27) Which of the following is not an example of a wireless system in the Internet ecosystem?

- A) wireless laptop
- B) cable DSL modem
- C) vehicle sensor
- D) wireless access point

Answer: C

Diff: 2 Page Ref: 696

28) When examining the process of the IOT, which step is not required prior to action?

- A) collection of data from sensors
- B) data analysis, mining and processing
- C) decision-making
- D) market research

Answer: D

Diff: 3 Page Ref: 696

29) Which of the following is not true about RFID?

- A) uses of radio-frequency waves to identify objects
- B) are viewed as a method to improve company supply chains
- C) consist only of the tag and integrator and computer program
- D) most currently used are passive

Answer: C

Diff: 2 Page Ref: 700

30) Which of the following is not a characteristic of smart sensors?

- A) senses the environment and processes the input internally
- B) processing is preprogrammed
- C) results are held internally within the unit
- D) are viewed as a critical component of the future IoT

Answer: C

Diff: 2 Page Ref: 700

31) Using an IOT system, this company autonomously schedules a valet to pick up its product when a repair is needed.

- A) Ford
- B) Tesla
- C) Johnny Walker
- D) Apple

Answer: B

Diff: 2 Page Ref: 702

32) IoT can provide more accurate information about specific customers buying decisions. For example, IoT can identify customer expectations and direct customers to specific brands. In relationship to how IoT can drive marketing opportunities this is referred to as:

- A) disruptive data collection.
- B) real-time personalization.
- C) environmental attribution.
- D) complete conversation path.

Answer: B

Diff: 2 Page Ref: 702

33) Which of the following is not a component of a typical smart home?

- A) energy management
- B) motion sensors
- C) fire detectors
- D) cooking

Answer: D

Diff: 2 Page Ref: 704

34) Which of the following is not a part of Google's nest applications?

- A) learning thermostat
- B) smoke detectors
- C) robotic vacuums
- D) security system

Answer: C

Diff: 2 Page Ref: 705

35) Which of the following is not currently part of the understanding of a cognitive building?

- A) learns and reasons data from humans
- B) can change building temperatures subject to human preferences
- C) tracks humans and their activities
- D) allows interaction via text messages and voice chatting

Answer: C

Diff: 2 Page Ref: 709

36) Which type of building includes predictive control down to the desk level?

- A) automated buildings
- B) smart buildings
- C) cognitive buildings
- D) none of these

Answer: C

Diff: 2 Page Ref: 709

37) Which of the following is not an implementation issue with autonomous vehicles?

- A) cost of real-time 3D mapping technologies
- B) lack of potential long-term benefits
- C) insurance company acceptance
- D) capabilities of AI software

Answer: B

Diff: 2 Page Ref: 717

38) Which company is not currently marketing a driverless car?

- A) SAS
- B) Google
- C) Tesla
- D) BMW

Answer: A

Diff: 2 Page Ref: 716

39) Which of the following is not a major implementation issue of IoT based on McKinsey's Global Institute?

- A) organizational alignment
- B) interoperability challenges
- C) long-term value
- D) security

Answer: C

Diff: 2 Page Ref: 718

40) Which of the following is not an area for potential AI enhancement of IOT in the future?

- A) ecosystem
- B) creation of devices
- C) shaping of symbiotic pairings
- D) defining business models

Answer: D

Diff: 2 Page Ref: 720

41) According to Miller (2015), the IoT is a connected network in which each thing has a unique \_\_\_\_\_.

Answer: definition (IP address)

Diff: 2 Page Ref: 690

42) According to Miller (2015), the IoT is a connected network in which each thing is delivered mostly over the \_\_\_\_\_.

Answer: wireless Internet

Diff: 2 Page Ref: 690

43) In contrast with the regular Internet that connects \_\_\_\_\_ to each other using computing technology, the IoT connects "things" to each other and to sensors that collect data.

Answer: people

Diff: 2 Page Ref: 690

44) In the \_\_\_\_\_ layer of the IoT the data collected are managed.

Answer: software backend

Diff: 2 Page Ref: 693

45) A major benefit of the IoT from a financial perspective is that it allows businesses to create new \_\_\_\_\_ streams.

Answer: revenue

Diff: 2 Page Ref: 694

46) Many of the major vendors of \_\_\_\_\_ platforms are the same ones who provide analytics and data storage services for other application domains.

Answer: IoT

Diff: 2 Page Ref: 694

47) The IoT may generate a huge amount of data that needs to be analyzed by various business intelligence methods, including \_\_\_\_\_, or advanced AI methods.

Answer: deep learning

Diff: 2 Page Ref: 696

48) Large-scale IoT usually needs to filter the collected data and \_\_\_\_\_ them before they can be used for decision support.

Answer: clean

Diff: 2 Page Ref: 697

49) A \_\_\_\_\_ sensor is one that senses the environment and processes the input it collects by using its built-in computing capabilities.

Answer: smart

Diff: 2 Page Ref: 700

50) \_\_\_\_\_ sensors are more reliable than those that operate in larger ranges.

Answer: Proximity

Diff: 2 Page Ref: 697

51) A smart refrigerator sending you a text message when an item is low is an example of sensor-to-\_\_\_\_\_.

Answer: insight

Diff: 2 Page Ref: 701

52) a smart refrigerator ordering an item when it is low or removed is an example of sensor-to-\_\_\_\_\_.

Answer: action

Diff: 2 Page Ref: 696

53) Smart homes will also have smart \_\_\_\_\_ that can serve people snacks, help take care of people who are handicapped, and even teach children different skills.

Answer: robots

Diff: 2 Page Ref: 706

54) When evaluating barriers to smart home adoption, confusion regarding too many products and vendors is an issue of \_\_\_\_\_.

Answer: compatibility

Diff: 2 Page Ref: 707

55) A \_\_\_\_\_ is a flexible system that can self-optimize performance across a broader network, self-adapt to and learn from new conditions in real or near real time, and autonomously run entire production processes.

Answer: smart factory

Diff: 2 Page Ref: 710

56) Many predict that in smart cities connected and self-driven \_\_\_\_\_ will be everywhere.

Answer: vehicles

Diff: 2 Page Ref: 714

57) \_\_\_\_\_ of a large number of flying cars may be a problem.

Answer: Navigation

Diff: 2 Page Ref: 717

58) In relation to self driving cars, customers seem to acknowledge that such cars are coming. But they resist \_\_\_\_\_ one.

Answer: boarding

Diff: 2 Page Ref: 717

59) \_\_\_\_\_ is a huge detriment thus far in the growth of IoT applications because few IoT devices connect seamlessly with each other.

Answer: Interoperability

Diff: 2 Page Ref: 718

60) \_\_\_\_\_ can help the integration of IoT with other IT systems.

Answer: AI

Diff: 2 Page Ref: 721

61) What are the steps to turn industrial IoT into a competitive advantage?

Answer: SAS proposed the following strategy cycle that includes these steps:

- Specify business goals
- Express an analytics strategy
- Evaluate the needs of edge analytics
- Select appropriate analytics solutions
- Continue improvement to close the loop

Diff: 2    Page Ref: 719-20

62) Describe what the IoT is.

Answer: The IoT is a connected network in which:

- Large numbers of objects (things) can be connected.
- Each thing has a unique definition (IP address).
- Each thing has the ability to receive, send, and store data automatically.
- Each thing is delivered mostly over the wireless Internet.
- Each thing is built upon machine-to-machine (M2M) communication.

Diff: 2    Page Ref: 690

63) List and describe the four components of the IoT technology infrastructure.

Answer:

1. Hardware: This includes the physical devices, sensors, and actuators where data are produced and recorded. The devices are the equipment that needs to be controlled, monitored, or tracked.

IoT sensor devices could contain a processor or any computing device that parses incoming data.

2. Connectivity: There should be a base station or hub that collects data from the sensor-laden objects and sends those data to the "cloud" to be analyzed. Devices are connected to a network to communicate with other networks or other applications. These may be directly connected to the Internet. A gateway enables devices that are not directly connected to the Internet to reach the cloud platform.

3. Software backend: In this layer, the data collected are managed. Software backend manages connected networks and devices and provides data integration. This may very well be in the cloud.

4. Applications: In this part of IoT, data are turned into meaningful information. Many of the applications can run on smartphones, tablets, and PCs and do something useful with the data. Other applications can run on the server and provide results or alerts through dashboards or messages to the stakeholders.

Diff: 3    Page Ref: 692-93

64) List five of the major drivers of the IoT.

Answer: Student responses and selections will vary, but may include:

- The number of "things"—20 to 50 billion—may be connected to the Internet by 2020-2025.
- Connected autonomous "things"/systems (e.g., robots, cars) create new IoT applications.
- Broadband Internet is more widely available, increasing with time.
- The cost of devices and sensors is continuously declining.
- The cost of connecting the devices is decreasing.
- Additional devices are created (via innovations) and are interconnected easily (e.g., see Fenwick, 2016).
- More sensors are built into devices.
- Smartphones' penetration is skyrocketing.
- The availability of wearable devices is increasing.
- The speed of moving data is increasing to 60 THz.
- Protocols are developing for IoT (e.g., WiGig).
- Customer expectations are rising; innovative customer services are becoming a necessity.
- The availability of IoT tools and platforms is increasing.
- The availability of powerful analytics that are used with IoT is increasing.

Diff: 3 Page Ref: 695

65) Describe the process of the IoT using figure 13.3.

Answer:

- Things communicate data to the Internet ecosystem through sensors and wireless systems.
- Information flows to the cloud where it is collected stored and transferred. In this step analysis, mining and processing may also be performed.
- This can result in intelligent knowledge which can then be subject to decision-making (possibly using machine learning) that may generate innovations and possibly actions.
- These actions may also be informed by people, machines or other systems.
- The results of these actions may then be said back in to the original Things to improve performance, usability, information gathering, etc.

Diff: 3 Page Ref: 696

66) Describe how RFID sensors work. What is an active tag?

Answer: An RFID system consists of a tag, an interrogator, one or several antennae attached to the reader, and a computer program. Most retail supply chains currently use passive RFID tags that receive energy from the electromagnetic field created by the interrogator and backscatter information only when it is requested. Active tags have a battery to energize themselves. Because active tags have their own power source, they do not need a reader to energize them; instead, they can initiate the data transmission process on their own.

Diff: 3 Page Ref: 700

67) Select and discuss an example of an existing IoT application.

Answer: Student selections and discussion will vary, but selections may be taken from section 13.6 which includes the French national railway system, Hilton Hotel, Ford, Tesla, Johnny Walker, Apple and Starbucks.

Diff: 2 Page Ref: 701-2

68) Discuss the four ways that IoT can drive marketing.

Answer:

1. Disruptive data collection. IoT collects more data about customers from more data sources than other technologies do. This includes data from wearables, smart homes, and everything consumers do. In addition, IoT provides data about changes in consumer preferences and behavior.
2. Real-time personalization. IoT can provide more accurate information about specific customers buying decisions, for example. IoT can identify customer expectations and direct customers to specific brands.
3. Environmental attribution. IoT can monitor environments regarding ad delivery for specific places, customers, methods, and campaigns. IoT can facilitate research of business environment; factors such competition, pricing, weather conditions, and new government regulations are observed.
4. Complete conversation path. IoT initiatives expand and enrich the digital channel of conversations between customers and vendors, especially those using wireless digital engagement. IoT also provides insight on consumer purchasing paths. In addition, marketers will receive improved customized market research data (e.g., by following the manner of customers' engagement and how customers react to promotions).

Diff: 2 Page Ref: 702

69) Select a smart home appliance that you are interested in, describe it and discuss its advantages.

Answer: Student selections and discussions will vary, but can include a wide number of potential smart home appliances and components to include lighting, televisions, energy management systems, water control systems, smart speakers and chat bots, home entertainment systems, alarm clocks, vacuum cleaners, cameras, refrigerators and home security systems.

Diff: 2 Page Ref: 703-4

70) Describe and differentiate between automated buildings, smart buildings and cognitive buildings.

Answer: Details and examples can be obtained from figure 13.5.

- Automated buildings allow the visualization of KPIs and are good for automated ratings allowing identification of general issues but do not identify energy waste well.
- Smart buildings analyze energy consumers and understand consumption of rooms in central assets well, but only analyze primary data points.
- Cognitive buildings are designed to learn behavior. This includes predictive control down to the desk level, understanding energy flow and occupancy, considering comfort preferences of users, and collecting context in decisions.

Diff: 2 Page Ref: 709

***Analytics, Data Science, & Artificial Intelligence, 11e (Sharda)***

**Chapter 14 Implementation Issues: From Ethics and Privacy to Organizational and Societal Impacts**

1) In the opening case on Waymo and Uber, the primary legal issue dealt with intellectual property.

Answer: TRUE

Diff: 2 Page Ref: 727

2) Today there is still a very limited number of competitors in the self-driving market category and all information is covered under trade secrets.

Answer: FALSE

Diff: 2 Page Ref: 728

3) Implementing business analytic/AI systems is not a complex undertaking.

Answer: FALSE

Diff: 2 Page Ref: 729

4) The implementation process of intelligent systems is similar to the generic process of other information systems.

Answer: TRUE

Diff: 2 Page Ref: 729

5) In designing analytic systems, it must be kept in mind that the right to an individual's privacy is not absolute.

Answer: TRUE

Diff: 2 Page Ref: 732

6) The public's right to know is not superior to the individual's right to privacy.

Answer: FALSE

Diff: 2 Page Ref: 732

7) Involvement of senior executives in analytics projects typically slows down the project and leads to failure.

Answer: FALSE

Diff: 2 Page Ref: 738

8) A factor of success in the implementation of an AI project is integrating intelligent systems into the workplace.

Answer: TRUE

Diff: 2 Page Ref: 738

9) As intelligent systems are implemented in an organization, managers tend to have an increased reliance on experts and analysts as decisions are made.

Answer: FALSE

Diff: 2 Page Ref: 744

10) A common organizational change as intelligent systems are implemented is the creation of an

analytics or BI department.

Answer: TRUE

Diff: 2 Page Ref: 741

11) In terms of jobs that are at risk due to intelligent systems, a healthcare social worker would be an example of a low risk job.

Answer: TRUE

Diff: 2 Page Ref: 750

12) In terms of jobs that are at risk due to intelligent systems, a telemarketer would be an example of a low risk job.

Answer: FALSE

Diff: 2 Page Ref: 750

13) Under the idea of friendly AI, AI machines would be designed so that they will benefit humans rather than harm them.

Answer: TRUE

Diff: 2 Page Ref: 754

14) Because Elon Musk represents a dystopian view of AI, he refuses to invest in any AI research.

Answer: FALSE

Diff: 3 Page Ref: 754

15) Ambient computing has the potential to anticipate people's desires and needs without asking.

Answer: TRUE

Diff: 2 Page Ref: 759

16) Gartner Inc. is a top technology research organization and consultant that provides an annual prediction of the technologies that it thinks will impact most organizations.

Answer: TRUE

Diff: 2 Page Ref: 756

17) Google is a large user of natural language processing in both Google translate and in search.

Answer: TRUE

Diff: 1 Page Ref: 760

18) Apple is uninterested in AI and not currently pursuing any projects in this field.

Answer: FALSE

Diff: 2 Page Ref: 760

19) Microsoft acquired Maluuba to assist in development of deep learning and NLP.

Answer: TRUE

Diff: 2 Page Ref: 761

20) AI development activities are primarily restricted to the United States.

Answer: FALSE

Diff: 2 Page Ref: 761

21) In which way did Waymo not benefit from the settlement with Uber?

- A) receives stock in the company
- B) confidential information not incorporated into future technology
- C) eliminated a competitor in the market
- D) reduced ongoing legal fees

Answer: C

Diff: 2 Page Ref: 728

22) Which step of the intelligent systems implementation process needs to provide the business case for intelligent systems?

- A) need assessment
- B) preparations
- C) system acquisition
- D) system development
- E) impact assessment

Answer: A

Diff: 2 Page Ref: 729-30

23) Which step of the intelligent systems implementation process is the determination to in source or outsource technologies determined?

- A) need assessment
- B) preparations
- C) system acquisition
- D) system development
- E) impact assessment

Answer: C

Diff: 2 Page Ref: 729-30

24) Which step of the intelligent systems implementation process checks the performance of systems against initial plans and metrics?

- A) need assessment
- B) preparations
- C) system acquisition
- D) system development
- E) impact assessment

Answer: E

Diff: 2 Page Ref: 729-30

25) Which of the following is not an ethical issue related to the use of intelligent systems?

- A) What is the impact on jobs?
- B) Is the level of company ROI appropriate?
- C) Can the system be fair and unbiased?
- D) How can control of a complex intelligent system be maintained?

Answer: B

Diff: 2 Page Ref: 736

26) Which of the following is not one of the 10 Commandments of computer ethics?

- A) Thou shalt not use a computer to harm other people
- B) Thou shalt not use a computer to steal
- C) Thou shalt not use a computer to bear false witness
- D) Thou shalt not use a computer to participate in activities frowned upon by any government

Answer: D

Diff: 2 Page Ref: 737

27) Which of the following is not a way to leverage intelligent systems and business?

- A) Customize the customer experience
- B) Increase customer engagement
- C) Use intelligent technologies to detect problems
- D) Increase customer costs to account for development expenses

Answer: D

Diff: 2 Page Ref: 740

28) Mr. Smith, an experienced MIS developer attempted to implement an AI system for his company. The planning and implementation failed due to the frequent use of large data sources which were outside of Mr. Smith's past experience. What system development implementation issue as characterized by Shchutskaya (2017) does this align with?

- A) development approach
- B) learning from data
- C) no clear view of how insights are generated
- D) all of these

Answer: A

Diff: 2 Page Ref: 738-39

29) Which of the following is not a potential impact of intelligent systems on managers' jobs?

- A) less expertise required to make decisions
- B) slower decision-making based on complexity
- C) redistribution of power among managers
- D) automation of routine decisions

Answer: B

Diff: 2 Page Ref: 744

30) An emerging area of research and practice is employing data science technologies for studying organizational dynamics, personnel behavior, and redesigning the organization to better achieve its goals. Indeed, such analytics applications are known as:

- A) Resource Analytics.
- B) Emotional Intelligence Systems.
- C) Human Resource Analytics.
- D) People Analytics.

Answer: D

Diff: 2 Page Ref: 743

31) Which of the following professions would be at the lowest risk of job loss due to the implementation of advanced intelligent systems?

- A) telemarketer
- B) audiologist
- C) insurance underwriter
- D) tax preparer

Answer: B

Diff: 2 Page Ref: 750

32) Which of the following is not predicted to be one of the changes in the nature of work that may be caused by intelligent systems?

- A) many activities currently done by humans may be automated
- B) productivity through the use of intelligent systems will grow
- C) AI will create many new jobs paying high salaries
- D) changes would be rapid and all jobs directly affected within 10 years

Answer: D

Diff: 2 Page Ref: 751

33) In terms of AI, Utopianist is likely to believe that:

- A) AI will support humans
- B) AI will enable innovations
- C) AI will partner with humans
- D) all of these

Answer: D

Diff: 2 Page Ref: 754

34) Even under the utopian view of AI, what issues will humans face?

- A) uncertainty about what to do with free time
- B) short-term impacts on jobs and work
- C) changes in the nature of work and life
- D) all of these

Answer: D

Diff: 2 Page Ref: 754

35) Edge computing is included in which of Gartner's top 10 leading technologies?

- A) AI foundation and development
- B) intelligent apps and analytics
- C) digital twin
- D) empowered cloud

Answer: D

Diff: 2 Page Ref: 756

36) Which of Gartner's top 10 leading technologies focuses on systems to increase security and business transactions?

- A) immersive experience
- B) blockchain
- C) augmented analytics
- D) empowered cloud

Answer: B

Diff: 2 Page Ref: 757

37) Which of Gartner's top 10 leading technologies focuses on the manner in which people can see and perceive the world?

- A) immersive experience
- B) blockchain
- C) augmented analytics
- D) empowered cloud

Answer: A

Diff: 2 Page Ref: 757

38) Which of Gartner's top 10 leading technologies focuses on of self driving vehicles?

- A) AI foundation and development
- B) intelligent apps and analytics
- C) intelligent and autonomous things
- D) empowered cloud

Answer: C

Diff: 2 Page Ref: 756

39) Baidu is a significant developer of what type of AI technology?

- A) deep learning
- B) NLP
- C) machine learning
- D) chat bots

Answer: B

Diff: 2 Page Ref: 762

40) Which of the following is not one of the three major components of Alibaba's ET Brain project?

- A) technologies
- B) markets
- C) capabilities
- D) applications

Answer: B

Diff: 2 Page Ref: 762

41) Employees that leave companies are interviewed and reminded that they signed an agreement regarding \_\_\_\_\_ they acquired when working for the company they leave.

Answer: trade secrets

Diff: 2 Page Ref: 727

42) It is estimated that the autonomous vehicle market could be worth \$\_\_\_\_\_ trillion by 2050.

Answer: 7

Diff: 2 Page Ref: 728

43) In the \_\_\_\_\_ step of the intelligent systems implementation process, it is necessary to examine the organization readiness for analytics and AI.

Answer: preparations

Diff: 2 Page Ref: 729-30

44) In the \_\_\_\_\_ step of the intelligent systems implementation process, it is necessary to complete security, integration with other systems, project management preparation activities.

Answer: system development

Diff: 2 Page Ref: 729-30

45) \_\_\_\_\_ is the right to be left alone and the right to be free from unreasonable personal intrusions.

Answer: Privacy

Diff: 2 Page Ref: 732

46) Intelligent systems professionals and users must be aware of the legal and \_\_\_\_\_ issues involved in collecting information that may be privileged or protected.

Answer: ethical

Diff: 2 Page Ref: 735

47) Many intelligent applications are managed and updated in the \_\_\_\_\_ and/or connected to the regular Internet.

Answer: cloud

Diff: 2 Page Ref: 739

48) Most of the issues related to \_\_\_\_\_ systems' adoption are the same as or similar to that of any information systems.

Answer: intelligent

Diff: 2 Page Ref: 740

49) Analytics can change the way in which many \_\_\_\_\_ are made by managers and can consequently change their jobs.

Answer: decisions

Diff: 2 Page Ref: 745

50) Intelligent technologies tend to \_\_\_\_\_ the time required to complete tasks in the decision-making process and eliminate some of the nonproductive waiting time by providing knowledge and information.

Answer: reduce

Diff: 2 Page Ref: 744

51) Not every business is using \_\_\_\_\_, but almost all those that use them increase income and profit

Answer: intelligent systems

Diff: 2 Page Ref: 752

52) It is reported that AI will create \_\_\_\_\_ million jobs in 2020 while eliminating 1.8 million.

Answer: 2.3

Diff: 2 Page Ref: 750

53) Many people are afraid of AI because they believe that computers will become \_\_\_\_\_ than we are.

Answer: smarter

Diff: 2 Page Ref: 753

54) A basic argument of the \_\_\_\_\_ expressed in interviews, TV lectures, and more, is that AI will support humans and enable innovations.

Answer: Utopianists

Diff: 2 Page Ref: 754

55) A \_\_\_\_\_ platform facilitates natural language interactions, resulting in improved collaboration.

Answer: Conversational Human-Machine

Diff: 2 Page Ref: 757

56) An electronic environment (e.g., network devices such as sensors) that are sensitive and responsive to people and their environments is referred to as ambient or \_\_\_\_\_ computing.

Answer: paradigm

Diff: 2 Page Ref: 758

57) \_\_\_\_\_ is the world's largest e-commerce company and the provider of cloud computing and IoT platforms.

Answer: Alibaba

Diff: 2 Page Ref: 762

58) Google has a special team that attempts to provide Google AI speech dialog with a \_\_\_\_\_.

Answer: personality

Diff: 2 Page Ref: 760

59) A possible benefit of ambient intelligence is its ability to \_\_\_\_\_ into the environment and existing systems

Answer: integrate

Diff: 2 Page Ref: 759

60) Sommer (2017) believes that \_\_\_\_\_ will spread both in organizations and in society.

Answer: data literacy

Diff: 2 Page Ref: 758

61) Discuss the major steps in the implementation of intelligent systems.

Answer:

- Step 1 Need assessment. Need assessment needs to provide the business case for the intelligent systems, including their major parts.
- Step 2 Preparations. In this step, it is necessary to examine the organization readiness for analytics and AI. It is necessary to check available resources, employees' attitudes for the change, projects' priorities, and so on.
- Step 3 System acquisition. Organizations need to decide on in-house or outsourcing approach (make or buy) or on a combination of the two and possibly with partnership with a vendor or another company. A consultant may help at this step.
- Step 4 System development. Regardless of who will develop the system, certain activities need to be done. These include security, integration with other systems, project management preparation, and other activities.
- Step 5 Impact assessment. It is necessary to check the performance of the systems against plans.

Diff: 2 Page Ref: 729-30

62) What are the three primary impacts of intelligent systems?

Answer: The three primary areas of impact of intelligent systems include impacts on the organization (including structure, employees, management, industries and the competitive environment), work and jobs (including automation, safes and unsafe jobs, and the nature of work) and unintended impacts (including the dangers of AI and the dangers of analytics).

Diff: 2 Page Ref: 730

63) The growth of intelligent systems can create a number of potential legal issues. Provide an example of a legal issue and discuss how intelligent systems could have an impact and ways that this impact could be better understood and/or mitigated.

Answer: Student selection and analysis of issues will vary, but issues may be selected from the group represented on pages 731 through 732.

Diff: 2 Page Ref: 731-32

64) Intelligent technologies have the potential to collect a wide amount of information on individuals both at work and in their private time. Do you feel this is appropriate, and how should it be regulated?

Answer: Student opinions and perceptions will vary along with their potential solutions to these issues.

Diff: 3 Page Ref: 733

65) Select an issue related to the growth or use of intelligent systems. Briefly define the issue and discuss the ethical concern present.

Answer: Student selection of issues and analysis of that issue will vary greatly, but students may select one of the issues listed on page 736.

Diff: 3 Page Ref: 736

66) List the 10 Commandments of computer ethics. Select one and discuss why you agree or disagree with it.

Answer: The "Ten Commandments" of computer ethics are:

1. Thou shalt not use a computer to harm other people.
2. Thou shalt not interfere with other people's computer work.
3. Thou shalt not snoop around in other people's files.
4. Thou shalt not use a computer to steal.
5. Thou shalt not use a computer to bear false witness.
6. Thou shalt not use or copy software for which you have not paid.
7. Thou shalt not use other people's computer resources without authorization.
8. Thou shalt not appropriate other people's intellectual output.
9. Thou shalt not think about the social consequences of the program you write.
10. Thou shalt not use a computer in ways that show consideration and respect.

Student selection and comment on a particular commandment will vary.

Diff: 3 Page Ref: 737

67) List the four-step approach identified by KPMG for successful implementation of digital labor.

Answer: The steps identified by KPMG (2018) include:

- Establishing priority areas for technological innovation.
- Developing a strategy and a plan for the employees.
- Identify providers and partners for plans' execution.
- Establishing a strategy and plans to realize benefits from the digital labor initiatives.

Diff: 2 Page Ref: 738

68) List and discuss the three main issues in AI and business analytics implementation as identified by Shchutskaya (2017).

Answer:

1. Development approach. Business analytic and AI systems require an approach different from that of other IT/computer systems. Specifically, it is necessary to identify and deal with different and frequently large data sources. It is necessary to cleanse and curate these data. Also, if learning is involved, one needs to use machine training. Thus, special methodologies are needed.
2. Learning from data. Many AI and business analytics involve learning. The quality of the input data determines the quality of the applications. Also, the learning mechanism is important. Therefore, data accuracy is critical. In learning, systems must be able to deal with changing environmental conditions. Data should be organized in databases, not in files.
3. No clear view is available of how insights are generated. AI, IoT, and business analytic systems generate insights, conclusions, and recommendations based on the analysis of the data collected. Given that data are frequently collected by sensors and there are different types of them, we may not have a clear view of the insights that are generated.

Diff: 2 Page Ref: 738-39

69) Discuss how the growth in analytics can affect organizational structure.

Answer: An often-cited change in organizational structure as additional analytics and DI projects are undertaken is the growth or creation of a separate analytics, DI or data science department. This may be a new department or be created from or into existing MIS departments. With this growth comes the creation of new positions related to these specialties and possibly the elimination of old positions that have become less relevant to overall company strategy. Conversely, in other organizations this results in embedding analytics specialties within each functional area (such as marketing, operations or finance).

Diff: 3 Page Ref: 741

70) Discuss how the implementation of intelligent systems will change the nature of your current job.

Answer: Student responses will vary based on the type of job that they identify, but many discussions will focus around how some positions will be eliminated and others created and/or augmented. Students may also discuss how new or changed positions will interact with intelligent systems.

Diff: 2 Page Ref: 751