AP Principles 5.1,5.2,5.3,5.4,5.4,5.6 MCQ

1. **Directions: The question or incomplete statement below is followed by four suggested answers or completions. Select the one that is best in each case.**

    A bank customer receives an e-mail from a sender claiming to be a bank employee. The e-mail asks the customer to provide personal information and to call a phone number if he or she has any questions. The customer suspects the e-mail might be a phishing attempt. Which of the following responses is most likely to be a privacy risk for the bank customer?

    (A) Calling the bank at its official phone number to ask whether the request for personal information is legitimate

    (B) Calling the phone number given in the e-mail and providing the personal information over the phone

    (C) Checking that the domain name of the sender's e-mail address is associated with the bank

    (D) Conducting aWeb search to see if other people have received similar requests for personal information

2. A city government is attempting to reduce the digital divide between groups with differing access to computing and the Internet. Which of the following activities is LEAST likely to be effective in this purpose?

    (A) Holding basic computer classes at community centers

    (B) Providing free wireless Internet connections at locations in low-income neighborhoods

    (C) Putting all government forms on the city Web site

    (D) Requiring that every city school has computers that meet a minimum hardware and software standard

3. Which of the following actions is most likely to help reduce the digital divide?

    (A) Adding a requirement that all users of a popular social media site link their accounts with a phone number.

    (B) Deploying satellites and other infrastructure to provide inexpensive Internet access to remote areas of Earth

    (C) Digitizing millions of books from university libraries, making their full text available online

    (D) Offering improved Internet connections to Internet users who are willing to pay a premium fee for more bandwidth

4. A state government is attempting to reduce the digital divide. Which of the following activities has the greatest potential to contribute to the digital divide rather than reducing it?

    (A) Providing programs that focus on technology literacy at local libraries

    (B) Requiring applicants for government jobs to apply using an online platform

    (C) Working with technology companies to offer computing devices at discounted prices to individuals with reduced incomes

    (D) Working with telecommunications companies to build network infrastructure in remote areas

5. Which of the following actions is most likely to raise legal or ethical concerns?

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(A) An analyst writes a program that scans through a database of open-access scientific journals and creates a document with links to articles written on a particular topic.

(B) A computer scientist adds several features to an open-source software program that was designed by another individual.

(C) A musician creates a song using samples of a copyrighted work and then uses a Creative Commons license to publish the song.

(D) A public interest group alerts people to a scam that involves charging them for a program that is available for free under a Creative Commons license.

6. Which of the following activities is most likely to be successful as a citizen science project?

(A) Collecting pictures of plants from around the world that can be analyzed to look for regional differences in plant growth.

(B) Designing and building a robot to help with tasks in a medical laboratory.

(C) Sorting scientific records and removing duplicate entries in a database with a large number of entries.

(D) Using a simulation to predict the impact of a construction project on local animal populations.

7. Which of the following is NOT an advantage of using open-source software?

(A) Open-source software is generally free or lower in cost than commercially available software.

(B) The availability of source code makes it possible to customize open-source software to a user's individual needs.

(C) The original developer of open-source software provides free or low-cost support for users installing and running the software.

(D) Unlike commercial software, which can become obsolete when the company that created it goes out of business, open-source software can be updated without the involvement of the original programmers.

8. Directions: For the question or incomplete statement below, two of the suggested answers are correct. For this question, you must select both correct choices to earn credit. No partial credit will be earned if only one correct choice is selected. Select the two that are best in each case.

A free online encyclopedia contains articles that can be written and edited by any user. Which of the following are advantages the online encyclopedia has over a traditional paper-based encyclopedia?

Select <u>two</u> answers.

A   The ability to easily check that the encyclopedia is free of copyrighted content

B   The ability to ensure that encyclopedia content is the same every time it is accessed

C   The ability to have a larger number of perspectives reflected in the encyclopedia content

D   The ability to quickly update encyclopedia content as new information becomes available

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9. **Directions: The question or incomplete statement below is followed by four suggested answers or completions. Select the one that is best in each case.**

   A musician is creating a song using audio samples. Which of the following actions will minimize the risk of a copyright violation when creating sample-based music?

   (A)   Using samples found on popular music-streaming sites

   (B)   Using samples found on peer-to-peer networks

   (C)   Using samples from nondigital sound sources (vinyl records, tapes, etc.)

   (D)   Using samples published with a no-rights-reserved Creative Commons license

10. An author is considering publishing an e-book using a Creative Commons license. In which of the following situations would it be better for the author to use a Creative Commons license instead of a traditional copyright?

   I.   The author wants to make the e-book available as a free download.

   II.   The author wants to prevent people from sharing copies of the e-book on peer-to-peer networks.

   III.   The author wants to allow people permission to use and modify the e-book.

   (A)   I only

   (B)   II only

   (C)   I and III

   (D)   II and III

11. Many Web browsers allow users to open anonymous windows. During a browsing session in an anonymous window, the browser does not record a browsing history or a list of downloaded files. When the anonymous window is exited, cookies created during the session are deleted. Which of the following statements about browsing sessions in an anonymous window is true?

   (A)   The activities of a user browsing in an anonymous window will not be visible to people who monitor the user's network, such as the system administrator.

   (B)   Items placed in a Web store's shopping cart for future purchase during the anonymous browsing session will not be saved on the user's computer.

   (C)   A user will not be able to log in to e-mail or social media accounts during the anonymous browsing session.

   (D)   A user browsing in an anonymous window will be protected from viruses launched from any Web sites visited or files downloaded.

12. Which of the following applications is most likely to benefit from the use of crowdsourcing?

   (A)   An application that allows users to convert measurement units (e.g., inches to centimeters, ounces to liters)

   (B)   An application that allows users to purchase tickets for a local museum

   (C)   An application that allows users to compress the pictures on their devices to optimize storage space

   (D)   An application that allows users to view descriptions and photographs of local landmarks

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13. **Directions: The question or incomplete statement below is followed by four suggested answers or completions. Select the one that is best in each case.**

    A user reads reviews of a popular artist's new album and then downloads the album from the Web site of a licensed online music seller. Which of the following is LEAST likely to be a consequence of this action?

    (A) Advertisements for the artist's other albums will be displayed when the user visits a different Web site.

    (B) Album reviews from other people who live nearby will be displayed to the user.

    (C) Similar artists will be recommended to the user based on the user's download selection.

    (D) The user will be in violation of the Digital Millennium Copyright Act (DMCA).

14. A certain social media application is popular with people across the United States. The developers of the application are updating the algorithm used by the application to introduce a new feature that allows users of the application with similar interests to connect with one another. Which of the following strategies is LEAST likely to introduce bias into the application?

    (A) Enticing users to spend more time using the application by providing the updated algorithm for users who use the application at least ten hours per week

    (B) Inviting a random sample of all users to try out the new algorithm and provide feedback before it is released to a wider audience

    (C) Providing the updated algorithm only to teenage users to generate excitement about the new feature

    (D) Testing the updated algorithm with a small number of users in the city where the developers are located so that immediate feedback can be gathered

15. The developers of a music-streaming application are updating the algorithm they use to recommend music to listeners. Which of the following strategies is LEAST likely to introduce bias into the application?

    (A) Making recommendations based on listening data gathered from a random sample of users of the application

    (B) Making recommendations based on the most frequently played songs on a local radio station

    (C) Making recommendations based on the music tastes of the developers of the application

    (D) Making recommendations based on a survey that is sent out to the 1,000 most active users of the application

MeeReader is an e-reading application that allows users to download and read books and articles on a device. Each user creates a profile with the following personal preferences.

Screen brightness and contrast
Choice of typeface and font size
Amount of spacing between lines of text
Activation of a text-to-speech feature that reads the text out loud

When the user launches the application, the application scans the user's face and uses facial recognition software to determine the user's identity. Once the user has been identified, the user's personal preferences are applied to whatever book or article the user chooses to read.

The application stores all user information in a database, including personal preferences and a record of previously read books and articles.

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16. Which of the following is most likely to be a beneficial effect of using MeeReader?

(A) Users may have a reduced risk of the application being used in unintended ways.

(B) Users may have a reduced risk of their biometric data being misused.

(C) Users with limited Internet access may be able to more easily obtain books and articles.

(D) Users with visual impairments may be able to more easily read or listen to books and articles.

17. From the perspective of the application's developers, which of the following is most likely to be a benefit of storing all user data in a database?

(A) The developers can analyze the data to make improvements to the application based on user behavior.

(B) The developers can analyze the data to ensure that no patterns emerge in the data.

(C) The developers can reduce the amount of data storage required to support the application.

(D) The developers can reduce the need for data encryption.

18. A researcher wants to publish the results of a study in an open access journal. Which of the following is a direct benefit of publishing the results in this type of publication?

(A) The researcher can allow the results to be easily obtained by other researchers and members of the general public.

(B) The researcher can better anticipate the effect of the results and ensure that they are used responsibly.

(C) The researcher can ensure that any personal information contained in the journal is kept private and secure.

(D) The researcher can prevent copies of the research from being accessed by academic rivals.

RunRoutr is a fitness tracking application for smartphones that creates suggested running routes so that users can run with each other. Upon downloading the application, each user creates a username, a personal profile, and a contact list of friends who also use the application. The application uses the smartphone's GPS unit to track a user's location, running speed, and distance traveled. Users can use the application to review information and statistics about their previous runs.

At the beginning of a run, users indicate the distance they want to run from their current location, and the application suggests a running route. Once a user accepts a suggested route, the application shares the suggested route with other compatible users in the area so that they can run together. Users are considered compatible if they are on each other's contact lists or if they typically run at similar speeds.

A basic RunRoutr account is free, but it displays advertisements that are targeted to individual users based on data collected by the application. For example, if a user's running route begins or ends near a particular store, the application may display an advertisement for that store. Users have the ability to pay a monthly fee for a premium account, which removes advertisements from the application.

19. Which of the following is most likely to be a benefit to users of the application?

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    (A)   The application allows users to identify all other users in a particular area.

    (B)   Users of the application may be able to easily identify all other users in a particular area as a result of the application's algorithm for determining whether users are compatible.

    (C)   Users of the application may see health benefits as a result of the application encouraging them to exercise with each other.

    (D)   Users of the application who live in rural areas have the ability to use all the features of the application, even when they do not have Internet and geolocation connectivity.

20.   Businesses have the ability to target advertisements to different groups of people who use RunRoutr. Which of the following groups is LEAST likely to receive targeted advertisements?

    (A)   Individuals who appear on each other's contact lists

    (B)   Individuals who are interested in running and fitness

    (C)   Individuals who sign up for a premium account

    (D)   Individuals whose running routes begin or end near a particular business location

21.   Which of the following is most likely to be a data privacy concern for RunRoutr users?

    (A)   Users of the application are required to carry their smartphones with them while running in order to enable all of the application's features.

    (B)   Users of the application may have the ability to determine information about the locations of users that are not on their contact lists.

    (C)   Users of the application may not be able to accurately track their running history if they share their smartphone with another family member.

    (D)   Users of the application may not be compatible with any other users in their area.
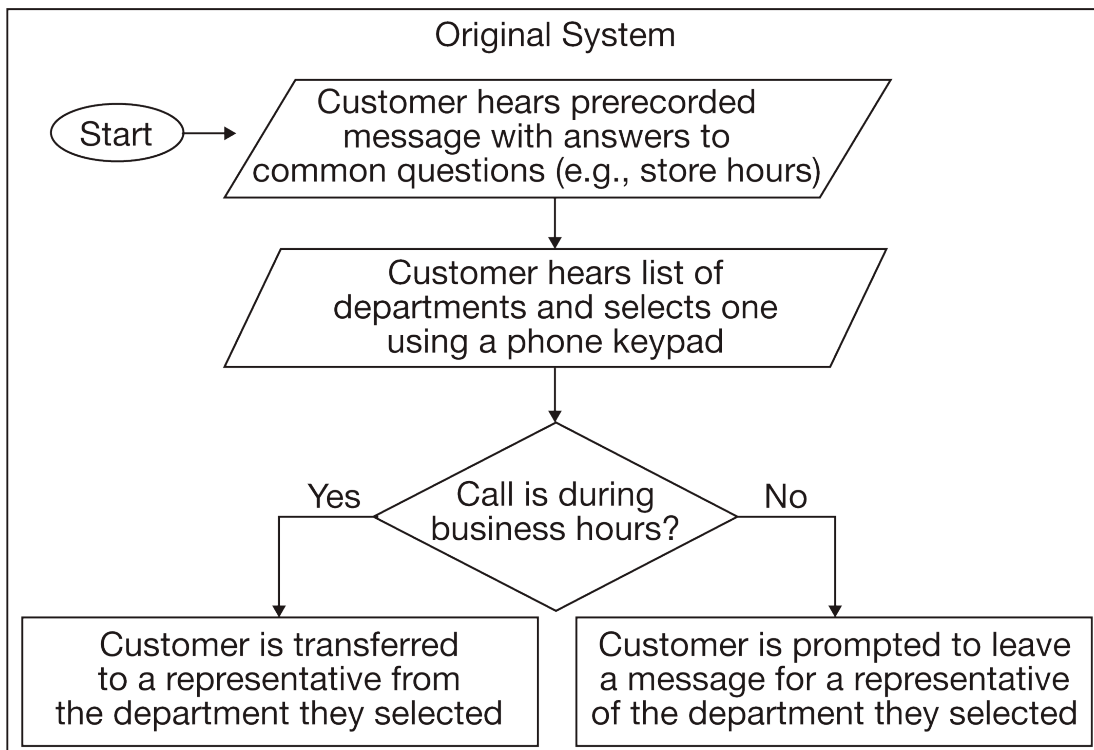
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A chain of retail stores uses software to manage telephone calls from customers. The system was recently upgraded. Customers interacted with the original system using their phone keypad. Customers interact with the upgraded system using their voice.

The upgraded system (but not the original system) stores all information from the calling session in a database for future reference. This includes the customer's telephone number and any information provided by the customer (name, address, order number, credit card number, etc.).

The original system and the upgraded system are described in the following flowcharts. Each flowchart uses the following blocks.

Block	Explanation
Oval	The start of the algorithm
Parallelogram	An input or output step
Diamond	A conditional or decision step, where execution proceeds to the side labeled "Yes" if the answer to the question is yes and to the side labeled "No" if the answer to the question is no
Rectangle	The result of the algorithm

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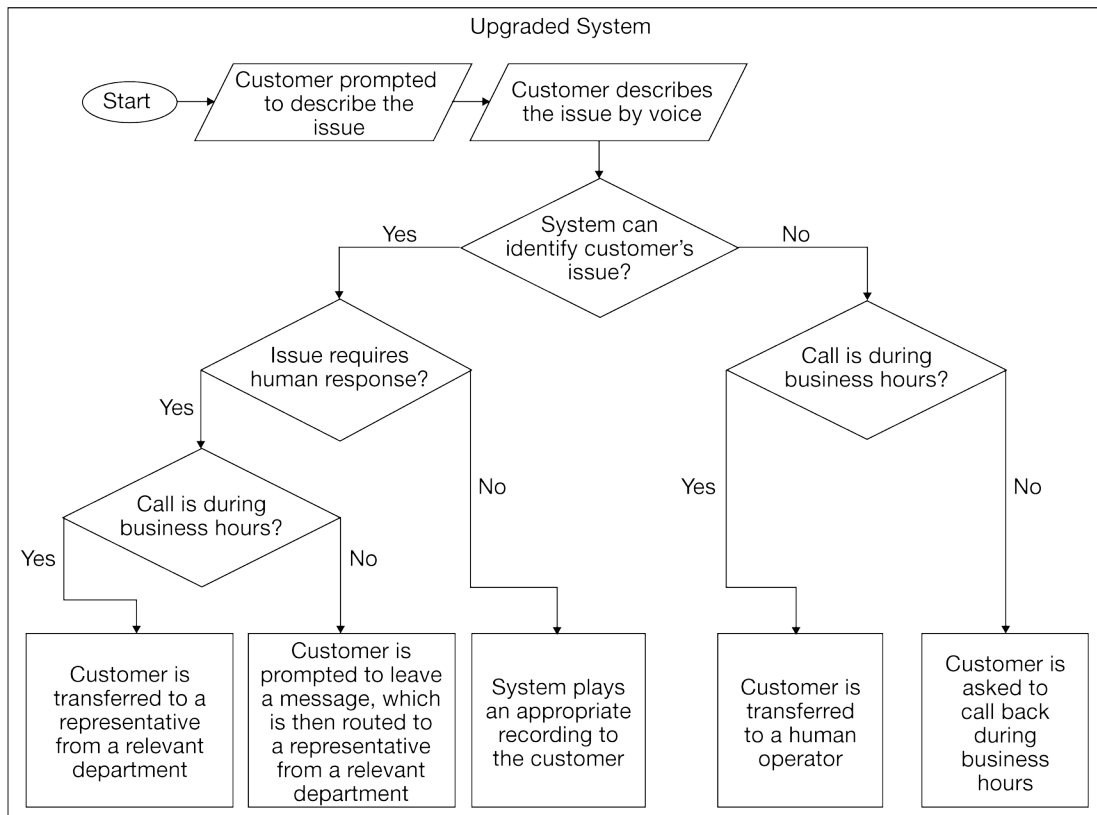
22. Which of the following is most likely to be a benefit of storing the information from each calling session in a database?

    (A)   The company can analyze the calling session data and thereby make better business decisions.

    (B)   The company can ensure that customer information is protected from misuse.

    (C)   The company can reduce the costs associated with data storage.

    (D)   The company can reduce its need for data compression.

23. Of the following potential benefits, which is LEAST likely to be provided by the upgraded system?

    (A)   Human representatives will not be needed to respond to some inquiries.

    (B)   The company will be able to provide a human representative for any incoming call.

    (C)   Customers are likely to spend less time listening to information not relevant to their issue.

    (D)   Customers will be unable to mistakenly select the incorrect department for their particular issue.

24. Which of the following is the most likely data privacy concern of the upgraded system?

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(A) Customers' personal information could be compromised if an unauthorized individual gains access to the call session database.

(B) Storing information in the call session database makes it easy for individuals to trick the system using malicious links.

(C) The system design increases the chance that customers will unknowingly install malware on their devices that will share their data with unauthorized individuals.

(D) The system design makes it easy for unauthorized individuals to acquire customers' private encryption keys.

25. A mobile game tracks players' locations using GPS. The game offers special in-game items to players when they visit real-world points of interest. Which of the following best explains how bias could occur in the game?

(A) Points of interest may be more densely located in cities, favoring players in urban areas over players in rural areas.

(B) Some players may engage in trespassing, favoring players in urban areas over players in rural areas.

(C) Special items may not be useful to all players, favoring players in urban areas over players in rural areas.

(D) Weather conditions may be unpredictable, favoring players in urban areas over players in rural areas.

26. Both online newspapers and social media sites are used to distribute information on the Internet. Which of the following best describes an advantage that online newspapers have over social media sites?

(A) The ability to distribute information instantaneously

(B) The ability to provide credibility to the information distributed

(C) The ability to provide information that is widely accessible

(D) The ability to provide media-rich content for low cost

27. A small team of wildlife researchers is working on a project that uses motion-activated field cameras to capture images of animals at study sites. The team is considering using a "citizen science" approach to analyze the images. Which of the following best explains why such an approach is considered useful for this project?

(A) Distributed individuals are likely to be more accurate in wildlife identification than the research team.

(B) The image analysis is likely to be more consistent if completed by an individual citizen.

(C) The image analysis is likely to require complex research methods.

(D) The image analysis is likely to take a longer time for the research team than for a distributed group of individuals.

28. **Directions: For the question or incomplete statement below, two of the suggested answers are correct. For this question, you must select both correct choices to earn credit. No partial credit will be earned if only one correct choice is selected. Select the two that are best in each case.**

Which of the following statements describe how cloud computing has affected Internet communication?

Select two answers.

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A   Cloud computing has eliminated the need to provide redundancy in Internet routing.

B   Cloud computing has helped enhance collaboration.

C   Cloud computing has introduced new data-security concerns.

D   Cloud computing has reduced concerns about intellectual property rights.

29.   Which of the following has the greatest potential for compromising a user's personal privacy?

   (A)   A group of cookies stored by the user's Web browser

   (B)   The Internet Protocol (IP) address of the user's computer

   (C)   The user's e-mail address

   (D)   The user's public key used for encryption

30.   The author of an e-book publishes the e-book using a no-rights-reserved Creative Commons license. Which of the following best explains the consequences of publishing the book with this type of license?

   (A)   The contents of the e-book will be encrypted and can only be decrypted by authorized individuals.

   (B)   Individuals can freely distribute or use the contents of the e-book without needing to obtain additional permissions from the author.

   (C)   Individuals will be legally prevented from sharing the e-book on a peer-to-peer network.

   (D)   Individuals will be legally prevented from using excerpts from the e-book in another published work.

31.   Which of the following is LEAST likely to be a contributing factor to the digital divide?

   (A)   Some individuals and groups are economically disadvantaged and cannot afford computing devices or Internet connectivity.

   (B)   Some individuals and groups do not have the necessary experience or education to use computing devices or the Internet effectively.

   (C)   Some parents prefer to limit the amount of time their children spend using computing devices or the Internet.

   (D)   Some residents in remote regions of the world do not have access to the infrastructure necessary to support reliable Internet connectivity.

32.   Which of the following best describes the impact of Creative Commons?

   (A)   Creative Commons gives creators of digital content the ability to indicate how their works can be legally used and distributed, enabling broad access to digital information.

   (B)   Creative Commons gives Internet users the right to legally use and distribute any previously copyrighted work, enabling broad access to digital information.

   (C)   Create Commons provides lossless transmission of messages, enabling reliable distribution of digital information.

   (D)   Creative Commons provides private transmission of messages, enabling secure distribution of digital information.

33.   A system is being developed to help pet owners locate lost pets. Which of the following best describes a system that uses crowdsourcing?

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(A) A mobile application and collar that uses GPS technology to determine the pet's location and transmits the location when the owner refreshes the application

(B) A mobile application and collar that uses wireless technology to determine whether the pet is within 100 feet of the owner's phone and transmits a message to the owner when the pet is nearby

(C) A mobile application that allows users to report the location of a pet that appears to be lost and upload a photo that is made available to other users of the application

(D) A mobile application that transmits a message to all users any time a lost pet is returned to its owner

StreamPal is an audio-streaming application for mobile devices that allows users to listen to streaming music and connect with other users who have similar taste in music. After downloading the application, each user creates a username, personal profile, and contact list of friends who also use the application.

The application uses the device's GPS unit to track a user's location. Each time a user listens to a song, the user can give it a rating from 0 to 5 stars. The user can access the following features for each song that the user has rated.

A list of users on the contact list who have given the song the same rating, with links to those users' profiles
A map showing all other users in the area who have given the song the same rating, with links to those users' profiles

A basic StreamPal account is free, but it displays advertisements that are based on data collected by the application. For example, if a user listens to a particular artist, the application may display an advertisement for concert tickets the next time the artist comes to the user's city. Users have the ability to pay a monthly fee for a premium account, which removes advertisements from the application.

34. Which of the following is most likely to be a data privacy concern for StreamPal users?

    (A) Users of the application are required to rate songs in order to enable all of the application's features.

    (B) Users of the application may have the ability to determine information about the locations of users that are not on their contact list.

    (C) Users of the application may not be able to use the application if they are located in an area with a poor Internet connection.

    (D) Users of the application may not have similar music taste to any other users on their contact list.

35. Which of the following statements is most likely true about the differences between the basic version and the premium version of StreamPal?

    (A) Users of the basic version of StreamPal are more likely to give songs higher ratings than are users of the premium version of StreamPal.

    (B) Users of the basic version of StreamPal indirectly support StreamPal by allowing themselves to receive advertisements.

    (C) Users of the basic version of StreamPal spend more on monthly fees than do users of the premium version of StreamPal.

    (D) Users of the basic version of StreamPal use less data storage space on their devices than do users of the premium version of StreamPal.

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36. **Directions: The question or incomplete statement below is followed by four suggested answers or completions. Select the one that is best in each case.**

Which of the following are true statements about how the Internet enables crowdsourcing?

> I. The Internet can provide crowdsourcing participants access to useful tools, information, and professional knowledge.

> II. The speed and reach of the Internet can lower geographic barriers, allowing individuals from different locations to contribute to projects.

> III. Using the Internet to distribute solutions across many users allows all computational problems to be solved in reasonable time, even for very large input sizes.

(A) I and II only

(B) I and III only

(C) II and III only

(D) I, II, and III

37. Which of the following are true statements about digital certificates in Web browsers?

> I. Digital certificates are used to verify the ownership of encrypted keys used in secured communication.

> II. Digital certificates are used to verify that the connection to a Web site is fault tolerant.

(A) I only

(B) II only

(C) I and II

(D) Neither I nor II

38. **Directions: The question or incomplete statement below is followed by four suggested answers or completions. Select the one that is best in each case.**

In public key cryptography, the sender uses the recipient's public key to encrypt a message. Which of the following is needed to decrypt the message?

(A) The sender's public key

(B) The sender's private key

(C) The recipient's public key

(D) The recipient's private key

39. A Web site uses several strategies to prevent unauthorized individuals from accessing user accounts. Which of the following is NOT an example of multifactor authentication?

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(A) Each employee for a company is issued a USB device that contains a unique token code. To log into a company computer, an employee must insert the USB device into the computer and provide a correct password.

(B) After logging into an account from a new device, a user must enter a code that is sent via e-mail to the e-mail address on file with the account.

(C) In order to log into an account, a user must provide both a password and a fingerprint that is captured using the user's device.

(D) When a user enters an incorrect password more than two times in a row, the user is locked out of the account for 24 hours.

40. **Directions: The question or incomplete statement below is followed by four suggested answers or completions. Select the one that is best in each case.**

Which of the following is an example of symmetric encryption?

(A) Evy buys a locked box that operates using two different codes. When the first code is entered, a slot opens that allows a message to be put in the box. When the second code is entered, the door to the box opens. Evy gives the first code to her friends so they can leave messages for her and keeps the second code to herself so that she is the only one who can retrieve the messages.

(B) Finn and Gwen develop a system that maps each letter of the alphabet to a unique symbol using a secret key. Finn uses the key to write a message to Gwen where each letter is replaced with the corresponding symbol. Gwen uses the key to map each symbol back to the original letter.

(C) Hannah writes a message to send to Isabel and hides the message under a rock behind the soccer field. Hannah gives Isabel the exact location of the rock so that only Isabel can find the message.

(D) Juan writes a message to send to Kelly and slides the message through a slot in the front of Kelly's locker. Juan knows that Kelly has not shared her locker combination with anyone, so no one other than Kelly will be able to read the message.

41. A software development company has created an application called FileCleanUp. When the application is run on a user device, it searches for all files (including pictures, videos, and documents) that have not been accessed in the past month, stores them on the company's Web server, and deletes them from the user device. The application runs once each day. Users have the ability to manually retrieve files from the server if they are needed.

Which of the following is most likely to be a harmful effect of using FileCleanUp?

(A) It prevents users from accessing frequently used files when there is no Internet connectivity.

(B) It prevents users from accessing infrequently used files when there is no Internet connectivity.

(C) It prevents users from accessing frequently used files when there is reliable Internet connectivity.

(D) It prevents users from accessing infrequently used files when there is reliable Internet connectivity.

42. A user unintentionally installs keylogging software on a computer. Which of the following is an example of how the keylogging software can be used by an unauthorized individual to gain access to computing resources?

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(A) The software gives an unauthorized individual remote access to the computer, allowing the individual to search the computer for personal information.

(B) The software installs a virus on the computer and prompts the user to make a payment to the unauthorized individual to remove the virus.

(C) The software prompts the user to enter personal information to verify the user's identity. This personal information is recorded and transmitted to an unauthorized individual.

(D) The software records all user input on the computer. The recorded information is transmitted to an unauthorized individual, who analyzes it to determine the user's login passwords.

43. **Directions: The question or incomplete statement below is followed by four suggested answers or completions. Select the one that is best in each case.**

Which of the following would be the best use of citizen science?

(A) An experiment that requires all participants to be working in the same laboratory

(B) An experiment that requires expensive equipment to conduct

(C) An experiment that requires data measurements to be taken in many different locations

(D) An experiment that requires specialized knowledge and training to conduct

44. An individual receives an e-mail that appears to be from an insurance company. The message offers a low insurance rate, and prompts the recipient to click a link to learn more. Which of the following is most indicative that the e-mail is part of a phishing attempt?

(A) After clicking the link, a browser cookie is downloaded to the recipient's computer.

(B) After clicking the link, a Web page opens that prompts the recipient for personal information.

(C) After clicking the link, the recipient's private network becomes publicly visible via a rogue access point.

(D) After clicking the link, software is installed on the recipient's computer that records every keystroke made on the computer.

45. Which of the following best exemplifies the use of keylogging to gain unauthorized access to a computer system?

(A) A user unintentionally installs a program on their computer that records all user input and forwards it to another computer. A few weeks later, someone else is able to access the user's computer using the recorded data.

(B) A user has a very common password for an online banking account. Someone else guesses the password after a few attempts and gains access to the user's account.

(C) A user logs into an unsecure Web site. Someone else is able to view unencrypted log-in information as it is transmitted over the Internet. The user has the same username and password for multiple accounts, so the user's log-in information for multiple systems may be compromised.

(D) A user receives an e-mail that claims to be from the user's bank. The e-mail instructs the user to click on a link to a Web site and enter a username and password to verify an account. Shortly after following the steps, the user discovers that the Web site is fraudulent and that the user's username and password were stolen.

46. Which of the following best exemplifies the use of multifactor authentication to protect an online banking system?

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(A) When a user resets a password for an online bank account, the user is required to enter the new password twice.

(B) When multiple people have a shared online bank account, they are each required to have their own unique username and password.

(C) After entering a password for an online bank account, a user must also enter a code that is sent to the user's phone via text message.

(D) An online bank requires users to change their account passwords multiple times per year without using the same password twice.

47. Which of the following activities poses the greatest personal cybersecurity risk?

(A) Making a purchase at an online store that uses public key encryption to transmit credit card information

(B) Paying a bill using a secure electronic payment system

(C) Reserving a hotel room by e-mailing a credit card number to a hotel

(D) Withdrawing money from a bank account using an automated teller machine (ATM)

48. A user purchased a new smart home device with embedded software and connected the device to a home network. The user then registered the device with the manufacturer, setting up an account using a personal e-mail and password. Which of the following explains how a phishing attack could occur against the user of the smart home device?

(A) A vulnerability in the device's software is exploited to gain unauthorized access to other devices on the user's home network.

(B) A vulnerability in the device's software is exploited to install software that reveals the user's password to an unauthorized individual.

(C) The user is sent an e-mail appearing to be from the manufacturer, asking the user to confirm the account password by clicking on a link in the e-mail and entering the password on the resulting page.

(D) The user's account is sent an overwhelming number of messages in an attempt to disrupt service on the user's home network.

49. Which of the following is LEAST likely to indicate a phishing attack?

(A) An e-mail from your bank asks you to call the number on your card to verify a transaction

(B) An e-mail from a merchant asks that you click on a link to reset your password

(C) An e-mail from a utility company asks you to enter your date of birth and social security number for verification purposes

(D) An e-mail indicates that you have won a large sum of money and asks you to enter your bank account number so that the money can be transferred to you

50. Which of the following is an example of a phishing attack?

(A) Loading malicious software onto a user's computer in order to secretly gain access to sensitive information

(B) Flooding a user's computer with e-mail requests in order to cause the computer to crash

(C) Gaining remote access to a user's computer in order to steal user IDs and passwords

(D) Using fraudulent e-mails in order to trick a user into voluntarily providing sensitive information

51. Which of the following scenarios best exemplifies a phishing attack?

AP Principles 5.1,5.2,5.3,5.4,5.4,5.6 MCQ

(A) A user connects to a public wireless network. An unauthorized individual intercepts data transmitted on the network, looking for private information that can be used to gain access to the user's accounts.

(B) A user's e-mail account is overwhelmed with messages containing large attachments, which causes the account to exceed the maximum amount of data allowed and temporarily prevents the user from sending and receiving new messages.

(C) A user receives an e-mail from a sender offering technical help with the user's computer. The e-mail prompts the user to start a help session by clicking a provided link and entering the username and password associated with the user's computer.

(D) A user chooses a weak password for an online account. An unauthorized individual successfully guesses the user's password from a list of common passwords.

52. A city's police department has installed cameras throughout city streets. The cameras capture and store license plate data from cars driven and parked throughout the city. The authorities use recorded license plate data to identify stolen cars and to enforce parking regulations.

    Which of the following best describes a privacy risk that could occur if this method of data collection is misused?

    (A) The cameras may not be able to read license plates in poor weather conditions.

    (B) Local business owners could lose customers who are unwilling to park in the city.

    (C) Traffic personnel who work for the city could lose their jobs if their services are no longer needed.

    (D) The vehicle location data could be used to monitor the movements of city residents.

53. A programmer created a piece of software and wants to publish it using a Creative Commons license. Which of the following is a direct benefit of publishing the software with this type of license?

    (A) The programmer can ensure that the algorithms used in the software are free from bias.

    (B) The programmer can ensure that the source code for the software is backed up for archival purposes.

    (C) The programmer can include code that was written by other people in the software without needing to obtain permission.

    (D) The programmer can specify the ways that other people are legally allowed to use and distribute the software.

54. **Directions: The question or incomplete statement below is followed by four suggested answers or completions. Select the one that is best in each case.**

    Which of the following best describes the purpose of machine learning programs?

    (A) To analyze large data sets, recognize patterns, and make predictions based on data

    (B) To automatically translate algorithms from natural language to machine language

    (C) To determine whether an algorithm can be constructed to answer "yes" or "no" for all possible inputs

    (D) To find approximate solutions to problems that would otherwise require an unreasonably long amount of time to solve

55. A software company is designing a mobile game system that should be able to recognize the faces of people who are playing the game and automatically load their profiles. Which of the following actions is most likely to reduce the possibility of bias in the system?

AP Principles 5.1,5.2,5.3,5.4,5.4,5.6 MCQ

    (A)   Testing the system with members of the software company's staff

    (B)   Testing the system with people of different ages, genders, and ethnicities

    (C)   Testing the system to make sure that the rules of the game are clearly explained

    (D)   Testing the system to make sure that players cannot create multiple profiles

56. Which of the following actions are likely to be helpful in reducing the digital divide?

Select two answers.

   A   Designing new technologies intended only for advanced users

   B   Designing new technologies to be accessible to individuals with different physical abilities

   C   Implementing government regulations restricting citizens' access to Web content

   D   Having world governments support the construction of network infrastructure

57. Directions: The question or incomplete statement below is followed by four suggested answers or completions. Select the one that is best in each case.

Which of the following actions could be used to help reduce the digital divide?

      I. Providing free education and training on how to use computing devices
      II. Providing free or low-cost computing devices to low-income individuals
      III. Providing networks and infrastructure to people in remote areas

    (A)   III only

    (B)   I and II only

    (C)   II and III only

    (D)   I, II, and III

58. Which of the following actions is most likely to be effective in reducing the digital divide at a local level?

    (A)   Creating an application that offers coupons and discounts for local businesses

    (B)   Offering a discount to utility customers who pay their bills online instead of by mail

    (C)   Providing free community access to computers at schools, libraries, and community centers

    (D)   Requiring applicants for local government jobs to complete an online application

59. Which of the following research proposals is most likely to be successful as a citizen science project?

    (A)   Collecting pictures of birds from around the world that can then be analyzed to determine how location affects bird size

    (B)   Monitoring a group of cells in a laboratory to determine how growth rate is affected by exposure to varying temperatures

    (C)   Using a simulation to determine which one from a set of chemicals causes the most significant change to local animal and plant life

    (D)   Using specialized equipment to perform three-dimensional scans of complex proteins found in human cells

AP Principles 5.1,5.2,5.3,5.4,5.4,5.6 MCQ

60. Which of the following best explains how a certificate authority is used in protecting data?

(A) A certificate authority certifies the safety of a particular Web site so that users know that it does not contain any viruses.

(B) A certificate authority issues passwords that grant access to secure databases.

(C) A certificate authority maintains a secure database that maps all Web domain names to the IP addresses of the servers where the sites are hosted.

(D) A certificate authority verifies the authenticity of encryption keys used in secured communications.

61. Which of the following school policies is most likely to have a positive impact on the digital divide?

(A) A school allows students to bring a graphing calculator from home to complete in-class mathematics assignments.

(B) A school allows students to bring a tablet computer to class every day to participate in graded quizzes.

(C) A school provides a laptop or tablet computer to all students enrolled at the school.

(D) A school recommends that all students purchase a computer with as much processing speed as possible so that projects run faster.

62. Which of the following is a true statement about the use of public key encryption in transmitting messages?

(A) Public key encryption enables parties to initiate secure communications through an open medium, such as the Internet, in which there might be eavesdroppers.

(B) Public key encryption is not considered a secure method of communication because a public key can be intercepted.

(C) Public key encryption only allows the encryption of documents containing text; documents containing audio and video must use a different encryption method.

(D) Public key encryption uses a single key that should be kept secure because it is used for both encryption and decryption.

63. A mobile application is used to display local traffic conditions. Which of the following features of the application best exemplifies the use of crowdsourcing?

(A) Users can save an address to be used at a later time.

(B) Users can turn on alerts to be notified about traffic accidents.

(C) Users can submit updates on local traffic conditions in real time.

(D) Users can use the application to avoid heavily congested areas.

64. An Internet user has a need to send private data to another user. Which of the following provides the most security when transmitting private data?

(A) Certifying the data with a Creative Commons license before sending it

(B) Sending the data using a high-bandwidth connection

(C) Sending the data using public-key encryption

(D) Sending the data using redundant routing

65. Which of the following is considered an **unethical** use of computer resources?

AP Principles 5.1,5.2,5.3,5.4,5.4,5.6 MCQ

(A) Downloading freeware or shareware onto your home computer

(B) Purchasing a game from an app store and downloading it directly to a mobile device

(C) Purchasing a single-user copy of photo editing software and installing it on all the computers in a computer lab

(D) Searching online for an electronic version of a school textbook

66. A student purchases a single-user license of a copyrighted application and wants other students to be able to use it at the same time. Under which of the following conditions is it considered acceptable for the student to share the application?

(A) When the application is shared only with students at the same school

(B) When the application is shared on a peer-to-peer network

(C) When the student gets permission from the copyright owner of the application

(D) When the student makes a copy of the application for another student to use only once

67. Which of the following is an example of an attack using a rogue access point?

(A) An unauthorized individual gains the ability to view network traffic by connecting to a network router that uses weak or no security measures.

(B) An unauthorized individual physically disconnects an exposed network router, making the network unavailable to some users.

(C) An unauthorized individual poses as a network administrator and attempts to trick a user into providing personal information.

(D) A group of unauthorized individuals overwhelms a network router with traffic, making it unavailable to some users.

68. An online gaming company is introducing several new initiatives to encourage respectful communication between players of online games. Which of the following best describes a solution that uses crowdsourcing?

(A) The company allows individual players to endorse fellow players based on courteous interactions. Once a player receives enough endorsements, the player is given free rewards that can be used during gameplay.

(B) The company eliminates chat from gameplay and sets the default chat policy to off. Players must actively turn on chat to converse outside of gameplay.

(C) The company introduces software that monitors all chats. Inappropriate conversations are identified, and players involved in the conversations are banned from the game.

(D) The company updates the acceptable content guidelines to explicitly describe appropriate and inappropriate behavior. All players must electronically sign an agreement to adhere to the guidelines.

69. Which of the following best exemplifies the use of multifactor authentication?

(A) A computing device enables users to input information using multiple interfaces, including a keyboard, a mouse, and a touch pad.

(B) A user employs a public key encryption method that uses one key to encrypt information and a different key to decrypt information.

(C) A Web site requires a user to enter a password as well as a numeric code received via text message before the user can log in to an account.

(D) Multiple users share an account to a Web-based software program, and each user has an individual username and password.

AP Principles 5.1,5.2,5.3,5.4,5.4,5.6 MCQ

70. Which of the following best explains how symmetric encryption algorithms are typically used?

(A) Symmetric encryption uses a single key that should be kept secret. The same key is used for both encryption and decryption of data.

(B) Symmetric encryption uses a single key that should be made public. The same key is used for both encryption and decryption of data.

(C) Symmetric encryption uses two keys that should both be kept secret. One key is used for encryption, and the other is used for decryption.

(D) Symmetric encryption uses two keys. The key used for encryption should be made public, but the key used for decryption should be kept secret.

71. Which of the following best explains how devices and information can be susceptible to unauthorized access if weak passwords are used?

(A) Unauthorized individuals can deny service to a computing system by overwhelming the system with login attempts.

(B) Unauthorized individuals can exploit vulnerabilities in compression algorithms to determine a user's password from their decompressed data.

(C) Unauthorized individuals can exploit vulnerabilities in encryption algorithms to determine a user's password from their encryption key.

(D) Unauthorized individuals can use data mining and other techniques to guess a user's password.

72. Individuals sometimes attempt to remove personal information from the Internet. Which of the following is the LEAST likely reason the personal information is hard to remove?

(A) Internet users with a copy of the information might redistribute the personal information without first seeking permission.

(B) There are potentially an extremely large number of devices on the Internet that may contain the information.

(C) Automated technologies collect information about Internet users without their knowledge.

(D) All personal information is stored online using authentication measures, making the information hard to access.