AP Computer Science Principles - Big Idea 5 Impact of Computing Practice Test

Question 1
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 and II

Question 2
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)

Question 3
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

Question 4
Which of the following is considered an unethical use of computer resources?

A. Downloading freeware or shareware onto your home computer
B. Purchasing a single-user copy of photo editing software and installing it on all computers in a computer lab
C. Purchasing a game from an app store and downloading it directly to a mobile device
D. Searching online for an electronic version of a school textbook

Question 5

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

Question 6
Fill in the blank of the following statement: "_____ encryption is a method of encryption involving one key for both encryption and decryption."

A. Symmetric
B. Asymmetric
C. Public key
D. SSL

Question 7
A coffee shop is considering accepting orders and payments through their phone app and has decided to use public key encryption to encrypt their customers' credit card information. Is this a secure form of payment?

A. No, public key encryption allows the credit card information to be read by the public.
B. No, the internet protocols are open standards and thus everything sent over the internet is sent "in the clear".
C. Yes, public key encryption is built upon computationally hard problems that even powerful computers cannot easily solve.
D. Yes, public key encryption is secure because it transmits credit card information in binary.

Question 8
Which of the following statements best describes the properties of public key encryption?

A. Public key encryption is a highly secure encryption scheme that in which a single shared key is used by both the sender and receiver of the message.
B. Public key encryption makes use of certain types of problems which are easier for humans to solve than computers.
C. Public key encryption makes use of mathematical problems which no algorithm can be used to solve.

D. Public key encryption is an encryption method which relies on separate keys for encrypting and decrypting information.

Question 9
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 data measurements to be taken in many different locations
C. An experiment that requires expensive equipment to conduct
D. An experiment that requires specialized knowledge and training to conduct

Question 10
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

Question 11
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.

Question 12
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

Question 13
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

Question 14
How can financial transactions safely occur on the Internet?

A. Through the use of symmetric keys
B. Through the use of double authentication methods
C. Through certificates issued by Certificate Authorities (CAs) that validate the keys used
D. Through the use of frequency analysis

Question 15
How does cryptography enable the Internet to process transactions securely?

A. Frequency analysis is used to disguise the use of common letters in encrypted messages keeping passwords secure
B. Symmetric keys are used to encrypt and decrypt messages for speed in processing to avoid being intercepted
C. Polynumeric alphabets are used encrypt and decrypt messages to allow for use with different languages
D. The public key encryption model is easy to use to encrypt data bat intractable to decrypt for large numbers

Question 16
A process that reverses encryption, taking a secret message and reproducing the original plain text

A. Encryption
B. Decryption

C. Cracking Encryption
D. Cipher

Question 17
This refers to differing access to computing devices and the Internet, based on socioeconomic, geographic, or demographic characteristics.

A. Digital divide
B. Divide and Conquer
C. Machine Learning
D. World Wide Web

Question 18
_____ can reflect existing human biases because of biases written into the algorithms or biases in the data used by the innovation.

A. Computing biases
B. Computing challenges
C. Computing algorithms
D. Computing innovations

Question 19
It is the practice of obtaining input or information from a large number of people via the Internet.

A. Researching
B. Information gathering
C. Crowdsourcing
D. Collecting data

Answer Key

1. A
2. C
3. A
4. B
5. C
6. A
7. C
8. D
9. B
10. D
11. B
12. A
13. A
14. C
15. D
16. B
17. A
18. D
19. C