Readings from Programming with Python 1st edition Mcmullen Test Bank

SKU: 9780357637456-TEST-BANK

Name:_____ Class:_____ Date:_____

Module 01: Computational Thinking

1. Which term refers to a series of finite steps for solving a problem or carrying out a task?
   a. pattern
   b. algorithm
   c. decomposition
   d. level of abstraction

ANSWER: b

2. Programming algorithms specify the underlying logic for the statements in a computer program.
   a. True
   b. False

ANSWER: True

3. Which statement best describes a computer program?
   a. It is a set of instructions that performs a specific task when executed by a digital device.
   b. It is a set of instructions executed in an application that specify the attributes for a classification of objects.
   c. It is a series of patterns that serve as the blueprints for a programming algorithm.
   d. It is a set of steps that specifies the underlying logic and structure for a classification pattern executed in an application.

ANSWER: a

4. One example of an algorithm used in an everyday technology application is _____.
   a. the decision to purchase a smartphone
   b. the structural decomposition process
   c. the Python programming language
   d. the payment process at an online store

ANSWER: d

5. Often, more than one programming algorithm can be used to effectively solve a problem or perform a task.
   a. True
   b. False

ANSWER: True

6. Why are computer scientists interested in algorithm efficiency?
   a. Efficient algorithms increase the security of computer programs.
   b. Efficient algorithms always produce a programming blueprint that can easily be applied to any programming language.
   c. Efficient algorithms produce simple, straightforward computer programs with very few lines of code.
   d. Efficient algorithms tend to produce computer programs that operate efficiently, quickly, and reliably.

ANSWER: d

7. An effective algorithm _____.
   a. applies to only one specific input
   b. terminates only upon user request
   c. produces at most one output

Copyright Cengage Learning. Powered by Cognero.

Readings from Programming with Python 1st edition Mcmullen Test Bank

d. produces one or more outputs

ANSWER: d

8. One way a programmer can devise an efficient algorithm for accomplishing a simple, everyday technology application is to use a standard algorithm.

a. True

b. False

ANSWER: True

9. A programmer who can't find a standard algorithm to accomplish a task can formulate a new algorithm by stepping through the process manually, recording those steps, and then analyzing their effectiveness.

a. True

b. False

ANSWER: True

10. To select an efficient algorithm for a use case, a programmer uses a set of techniques designed to formulate problems and their solutions known as _____.

a. algorithm termination closure

b. standard algorithm processing

c. computational thinking

d. hierarchical modeling

ANSWER: c

11. What term refers specifically to the process of dividing a complex problem into smaller parts?

a. abstraction

b. decomposition

c. computational thinking

d. pattern identification

ANSWER: b

12. Why is decomposition an important tool for computer scientists?

a. It creates algorithm designs with a flat layout, leading to programs that are more efficient.

b. It creates algorithm designs with a high level of abstraction, leading to programs that are more efficient.

c. It creates algorithm designs with a low level of abstraction, leading to programs that are more efficient.

d. It creates algorithm designs with more manageable pieces, leading to programs that are more efficient and maintainable.

ANSWER: d

13. A programmer uses decomposition when devising an algorithm for a complex problem or task.

a. True

b. False

ANSWER: True

14. Which phrase describes an example of structural decomposition?

a. using algorithmic pattern recognition to identify possible variables

Copyright Cengage Learning. Powered by Cognero.

Readings from Programming with Python 1st edition Mcmullen Test Bank

b. diagramming a mobile banking app as a hierarchy of building-block units
c. breaking down a two-factor authentication module into smaller actions, processes, or steps
d. looking for two-factor authentication logical and physical objects that a computer program will manipulate

ANSWER: b

15. Which phase describes an example of functional decomposition?
a. using algorithmic pattern recognition to identify possible variables
b. diagramming a mobile banking app as a hierarchy of building-block units
c. breaking down a two-factor authentication module into smaller actions, processes, or steps
d. looking for two-factor authentication logical and physical objects that a computer program will manipulate

ANSWER: c

16. Which phrase describes an example of object-oriented decomposition?
a. using algorithmic pattern recognition to identify possible variables
b. diagramming a mobile banking app as a hierarchy of building-block units
c. breaking down a two-factor authentication module into smaller actions, processes, or steps
d. looking for two-factor authentication logical and physical objects that a computer program will manipulate

ANSWER: d

17. Suppose a programmer is functionally decomposing a two-factor authentication process. Which step requires further decomposition before it can become a step in an algorithm?
a. Prompt for user ID.
b. Prompt for password.
c. Generate a one-time PIN.
d. Validate that user ID and password match.

ANSWER: d

18. What statement describes how dependencies and cohesion relate to decomposition?
a. An effective breakdown maximizes dependencies among the various parts.
b. An effective breakdown minimizes cohesion among the various parts.
c. An effective breakdown maximizes dependencies and minimizes cohesion among the various parts.
d. An effective breakdown minimizes dependencies and maximizes cohesion among the various parts.

ANSWER: d

19. Which term refers specifically to the process of finding similarities in procedures and tasks?
a. pattern identification
b. decomposition
c. computational thinking
d. abstraction

ANSWER: a

20. Which idea represents an example of a fill-in-the blank pattern?
a. looking for patterns in an algorithm that allow the algorithm to work for any input number value
b. allowing three password entry attempts before locking a user out of an online account

Copyright Cengage Learning. Powered by Cognero.

Readings from Programming with Python 1st edition Mcmullen Test Bank

c. defining a class called “Restaurant” with attributes of restaurant name, hours of operation, and menu
d. using a variable to represent many different numbers

ANSWER: a

21. Which idea represents an example of a repetitive pattern?
a. looking for patterns in a template used to specify the attributes for an abstract object
b. allowing three password entry attempts before locking a user out of an online account
c. defining a class called “Restaurant” with attributes of restaurant name, hours of operation, and menu
d. using a variable to represent many different numbers

ANSWER: b

22. What phrase identifies an example of a single object template, or class, from a classification pattern?
a. social media subscriber
b. restaurant name, hours of operation, and menu
c. a user ID, a password, and a mobile number
d. car color, make, model, and VIN number

ANSWER: a

23. Recognizing that each user of a social media site has a login credential set is an example of pattern identification.
a. True
b. False

ANSWER: True

24. Which term refers to a technique that hides details, simplifies complexity, and substitutes a generalization for something specific?
a. computational thinking
b. pattern identification
c. abstraction
d. decomposition

ANSWER: c

25. Which statement describes why abstraction is an important computer science concept?
a. It provides a means to hide implementation details from the user to simplify subsequent development and promotes software reuse.
b. It allows a complex application to be divided into smaller modules.
c. It ensures a computer program will continue to work efficiently as the size of the data set grows.
d. It ensures the correct application classes are assigned to the correct attribute.

ANSWER: a

26. Which example illustrates how abstraction can help identify variables?
a. Abstraction can be used in functional design to identify the classes related to variables.
b. Abstraction can be used in functional design to identify the attributes related to variables.
c. Abstraction can be used in object-oriented design to identify the objects related to variables.
d. Abstraction can be used in pattern recognition to identify possible variables.

Copyright Cengage Learning. Powered by Cognero.

Readings from Programming with Python 1st edition Mcmullen Test Bank

Module 01: Computational Thinking

ANSWER: d

27. A login credentials template used in a social media application is an example of an abstraction that contains a set of attributes.
    a. True
    b. False

ANSWER: True

28. Which example illustrates how a class can be used as an abstraction?
    a. A programmer creates a class to represent the temperature required to boil water in degrees Celsius.
    b. A programmer creates a class to represent the temperature required to freeze water in degrees Celsius.
    c. A programmer creates a class to handle a recognized pattern of attributes required to describe a glassware product.
    d. A programmer creates a class to handle the value of the mathematical construct pi.

ANSWER: c

29. Which statement describes how the black box concept is an implementation of abstraction?
    a. A black box produces an output by using unique templates that utilize abstract variables.
    b. A black box produces an output by creating a classification pattern.
    c. A black box produces an output while hiding the inner workings of a process.
    d. A black box produces an output by implementing pattern identification.

ANSWER: c

30. Abstracting out too much detail can make a program too specific to work with a wide variety of data.
    a. True
    b. False

ANSWER: False

Copyright Cengage Learning. Powered by Cognero.

Readings from Programming with Python 1st edition Mcmullen Test Bank