Python Programming in Context 4th edition Anderson Test Bank

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Python Programming in Context 4E
Ch. 01
Test Bank
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Import Settings:
Base Settings: Brownstone Default
Information Field: Complexity
Information Field: Ahead
Information Field: Subject
Information Field: Title
Highest Answer Letter: D
Multiple Keywords in Same Paragraph: No

Multiple Choice

1. How does your text differentiate the three levels of problem-solving?
A) Input, variables, and output
B) Strategy, tactics, and tools
C) Algorithms, programs, and plans
D) Analysis, implementation, and execution
Ans: B
Complexity: Moderate
Ahead: Problem-Solving Strategies
Subject: Chapter 1
Title: Introduction to Python

2. You are working out a solution to a problem with the tips given in Chapter 1 of your text. What technique enables you to go from some specific examples of a solution to a solution that can be implemented as a program?
A) Generalization
B) Simplification
C) Representation
D) Visualization
Ans: A
Complexity: Easy
Ahead: Problem-Solving Strategies
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Title: Introduction to Python

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3. You can type commands interactively at the Python shell by opening the Python interpreter and starting a(n):
A) expression.
B) listing.
C) session.
D) object.
Ans: C
Complexity: Easy
Ahead: Python Overview
Subject: Chapter 1
Title: Introduction to Python

4. Whole numbers in Python are called:
A) complex numbers.
B) decimals.
C) floating-point numbers.
D) integers.
Ans: D
Complexity: Easy
Ahead: Python Overview
Subject: Chapter 1
Title: Introduction to Python

5. You have entered a calculation in the Idle Python interpreter. To see the result of this calculation, which key would you press?
A) Spacebar
B) Tab
C) Enter (or Return)
D) =
Ans: C
Complexity: Easy
Ahead: Python Overview
Subject: Chapter 1
Title: Introduction to Python

6. Which of the following is the Idle Python prompt?
A) >>
B) >>>

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C) #
D) //
Ans: B
Complexity: Easy
Ahead: Python Overview
Subject: Chapter 1
Title: Introduction to Python

7. What is the result of the expression 15//2?
A) 1
B) 7
C) 7.5
D) 30
Ans: B
Complexity: Moderate
Ahead: Python Overview
Subject: Chapter 1
Title: Introduction to Python

8. What is the result of the expression 15/2?
A) 1
B) 7
C) 7.5
D) 8
Ans: C
Complexity: Moderate
Ahead: Python Overview
Subject: Chapter 1
Title: Introduction to Python

9. What do you use to associate an object name with an expression in Python?
A) Object space
B) Key label
C) Assignment statement
D) Abstract reference
Ans: C
Complexity: Easy
Ahead: Python Overview
Subject: Chapter 1
Title: Introduction to Python

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10. The name that allows us to locate a Python object is a(n):
A) algorithm.
B) assignment.
C) operand.
D) variable.
Ans: D
Complexity: Easy
Ahead: Python Overview
Subject: Chapter 1
Title: Introduction to Python

11. Consider the following sequence of assignment statements:
x = 15
y = 25
x = y
What is the value of x after the first line?
A) 0
B) 15
C) 25
D) y
Ans: B
Complexity: Moderate
Ahead: Python Overview
Subject: Chapter 1
Title: Introduction to Python

12. Consider the following sequence of assignment statements:
x = 15
y = 25
x = y
What is the value of x after the last line?
A) 0
B) 15
C) 25
D) z
Ans: C
Complexity: Moderate
Ahead: Python Overview
Subject: Chapter 1

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Title: Introduction to Python

13. The `turtle` module provides us with a simple graphics programming tool known as a "turtle." Very simply, a turtle is an object that we can control. A turtle can move forward or backward, and it can turn in any direction. When a turtle moves, it draws a line if its tail is down. A turtle object has both attributes and methods. One of the attributes of a turtle is:
A) color.
B) forward.
C) down.
D) dot.
Ans: A
Complexity: Moderate
Ahead: Python Overview
Subject: Chapter 1
Title: Introduction to Python

14. The `turtle` module provides us with a simple graphics programming tool known as a "turtle." Very simply, a turtle is an object that we can control. A turtle can move forward or backward, and it can turn in any direction. When a turtle moves, it draws a line if its tail is down. A turtle object has both attributes and methods. The turtle ____ method does not take any parameters.
A) forward
B) position
C) right
D) fillcolor
Ans: B
Complexity: Moderate
Ahead: Python Overview
Subject: Chapter 1
Title: Introduction to Python

15. The `turtle` module provides us with a simple graphics programming tool known as a "turtle." Very simply, a turtle is an object that we can control. A turtle can move forward or backward, and it can turn in any direction. When a turtle moves, it draws a line if its tail is down. A turtle object has both attributes and methods. Assume you have created a turtle instance. What is the result of calling the `position` method?
A) (0.0)
B) (0.00, 0.00)
C) (50.00, 50.00)
D) (100.00, 100.00)

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Ans: B
Complexity: Moderate
Ahead: Python Overview
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16. Consider the following `for` loop template. How many times will statement1 be executed?

```
for i in range(5):
     statement1
     statement2
     ...
```

A) 0
B) 1
C) 5
D) n
Ans: C
Complexity: Moderate
Ahead: Python Overview
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17. Given the following function definition, and assuming you have created a turtle named t, which of the statements below produces a square?

```
def drawPolygon(myTurtle, sideLength, numSides):
     turnAngle = 360 / numSides
     for i in range(numSides):
          myTurtle.forward(sideLength)
          myTurtle.right(turnAngle)
```

A) drawPolygon(t, 100, 4)
B) drawPolygon(t, 100, 8)
C) drawPolygon(t, 50, 20)
D) drawPolygon(t, 20, 20)
Ans: A
Complexity: Difficult
Ahead: Python Overview
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True or False

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1. True or False? Machine learning is providing key help on the forefront of diagnosing disease.
Ans: True
Complexity: Easy
Ahead: Why Study Computer Science?
Subject: Chapter 1
Title: Introduction to Python

2. True or False? The best way to learn Python is to read through a textbook before typing any commands to ensure that you understand the key concepts first.
Ans: False
Complexity: Easy
Ahead: Python Overview
Subject: Chapter 1
Title: Introduction to Python

3. True or False? At a high level, the Python interpreter simply does two things over and over again: (1) read and (2) write.
Ans: False
Complexity: Easy
Ahead: Python Overview
Subject: Chapter 1
Title: Introduction to Python

4. True or False? When converting floating-point numbers to integers, Python always truncates the fractional part of the number.
Ans: True
Complexity: Easy
Ahead: Python Overview
Subject: Chapter 1
Title: Introduction to Python

5. True or False? To get the remainder after integer division, use the modulo operator (%).
Ans: True
Complexity: Easy
Ahead: Python Overview
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Matching

1. Match each term with its definition.
1. Used by Python to classify different kinds of objects.
Ans: Type
2. A combination of operators and operands.
Ans: Expression
3. The name found on the left side of the equals sign in an assignment statement.
Ans: Variable
4. A method that creates a new object.
Ans: Constructor
5. Step-by-step instructions that provide a solution to a problem.
Ans: Program
Complexity: Moderate
Ahead: Python Overview
Subject: Chapter 1
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Essay

1. Illustrate how computer science is used every day with an example.
Ans: If you go to the doctor and need medical imaging such as a computed axial tomography (CAT) scan or magnetic resonance imaging (MRI), you are relying on sophisticated computer programs to create and interpret the images of your body. If you peek into the cockpit of an airplane, you will see panels of displays with virtual switches. In addition, the pilot of the airplane has spent many hours training in a simulated environment controlled by a computer.
Complexity: Moderate
Ahead: Why Study Computer Science?
Subject: Chapter 1
Title: Introduction to Python

2. You have been asked to answer the following question: “A class has 12 students. At the beginning of class, each student shakes hands with each of the other students. How many handshakes take place?” Explain how you would use a simplification strategy to answer this question.

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Ans: To help you make progress toward the correct answer, you can employ a strategy called simplification. Simplification is a strategy that reduces a problem to a trivial size.
Let's assume that instead of 12 people, there is only one person in the classroom. When there is only a single person, no handshakes will take place. But what happens when a second person enters the classroom? Upon entering the room, the second person must shake hands with the first (and only other) person in the room for one handshake. Now suppose a third person enters the classroom. The third person must shake hands with the first two, making a total of 2 + 1 + 0 = 3 handshakes. The fourth person who enters the room must shake hands with the three people already in the room, so our total handshake count is now 3 + 2 + 1 + 0 = 6. By this time, you should see a pattern of generalization—a technique that enables you to go from some specific examples to a solution that can be implemented as a program.
Complexity: Moderate
Ahead: Problem-Solving Strategies
Subject: Chapter 1
Title: Introduction to Python

3. Describe the types of primitive objects that Python provides for working with numbers.
Ans: Python supports several different types of primitive objects in the number family: integers for ordinary simple math; floating-point numbers for working with financial applications where we need to keep track of dollars and cents; and complex numbers for advanced scientific applications.
Complexity: Moderate
Ahead: Python Overview
Subject: Chapter 1
Title: Introduction to Python

4. Explain how the Python interpreter evaluates the statement below.
name = python expression
Ans: When the Python interpreter evaluates an assignment statement, it first evaluates the expression that it finds on the right-hand side of the equals sign. Once the right-hand side expression has been evaluated, the resulting object is referred to using the name found on the left side of the equals sign. In computer science, we call these names variables. More formally, we define a variable to be a named reference to a data object. In other words, a variable is simply a name that allows us to locate a Python object.
Complexity: Moderate
Ahead: Python Overview
Subject: Chapter 1
Title: Introduction to Python

5. Describe the rules that Python imposes on the possible values for name in the statement below.

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name = python expression
Ans: There are several important rules to remember about naming things in Python. Names can include any letter, number, or an _ (underscore). Names must start with either a letter or an _. Python is case sensitive, which means that the names baseArea, basearea, and BaseArea are all different. Some names are reserved by Python for its own use. These are called keywords and correspond to important Python capabilities.
Complexity: Easy
Ahead: Python Overview
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6. What is abstraction, and how does this concept relate to a "black box"?
Ans: Abstraction is defined as a concept or idea not associated with any specific instance. For example, you can think of mathematical functions on your calculator such as square root, sine, and cosine as abstractions. These functions can calculate a value for any number, but the method of calculating a square root is independent of the particular number. In that way, we can think of a function that calculates a square root as being the general idea. The square root function works equally well for all numbers because it is a general function. We do not have a special square root function for each possible number, just one function that works for all numbers.
One way of thinking about functions is as a "black box." You send information into the black box on one side, and new information comes out on the other side. You don't know exactly what goes on inside the box, but you do know the behavior the box should exhibit.
Complexity: Moderate
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7. The expression turtle.Turtle() contains the dot(.) operator. What is the purpose of this operator?
Ans: The dot operator tells Python to look up the name right in front of the dot and return the object it names. This process is referred to as dereferencing. In this case, the dereferencing operation allows Python to find the turtle module. Once we have the module, Python continues looking for the name to the right of the dot. In this case, Python looks for the name Turtle. A good way to think of this is that Turtle is "inside" the turtle module. So, the first "dot" gets us to the turtle module, and when inside the turtle module, we find the object named Turtle.
Complexity: Moderate
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