**Starting Out with Python 4e (Gaddis)**

**Chapter 3 Decision Structures and Boolean Logic**

**TRUE/FALSE**

1. The Python language is not sensitive to block structuring of code.

ANS: F

2. The **if** statement causes one or more statements to execute only when a Boolean expression is true.

ANS: T

3. Python allows you to compare strings, but it is not case sensitive.

ANS: F

4. Nested decision statements are one way to test more than one condition.

ANS: T

5. Python uses the same symbols for the assignment operator as for the equality operator.

ANS: F

6. The **not** operator is a unary operator which must be used in a compound expression.

ANS: F

7. Short -circuit evaluation is only performed with the **not** operator.

ANS: F

8. Expressions that are tested by the **if** statement are called Boolean expressions.

ANS: T

9. Decision structures are also known as selection structures.

ANS: T

10. An action in a single alternative decision structure is performed only when the condition is true.

ANS: T

11. The following statement will check to see if the turtle's pen color is **'green'**:

**if turtle.pencolor() = 'green'**

ANS: F

12. The following code snippet will change the turtle's pen size to **4** if it is presently less than **4**:

**if turtle.pensize() < 4:**

**turtle.pensize(4)**

ANS: T

**MULTIPLE CHOICE**

1. A(n) \_\_\_\_\_\_\_\_\_\_ structure is a logical design that controls the order in which a set of statements execute.

|  |  |
| --- | --- |
| a. | function |
| b. | control |
| c. | sequence |
| d. | iteration |

ANS: B

2. The decision structure that has two possible paths of execution is known as

|  |  |
| --- | --- |
| a. | single alternative |
| b. | double alternative |
| c. | dual alternative |
| d. | two alternative |

ANS: C

3. Multiple Boolean expressions can be combined by using a logical operator to create \_\_\_\_\_\_\_\_\_\_ expressions.

|  |  |
| --- | --- |
| a. | sequential |
| b. | logical |
| c. | compound |
| d. | mathematical |

ANS: C

4. When using the \_\_\_\_\_\_\_\_\_\_ logical operator, one or both of the subexpressions must be true for the compound expression to be true.

|  |  |
| --- | --- |
| a. | **or** |
| b. | **and** |
| c. | **not** |
| d. | **maybe** |

ANS: A

5. Which logical operators perform short-circuit evaluation?

|  |  |
| --- | --- |
| a. | **or**, **not** |
| b. | **not**, **and** |
| c. | **or**, **and** |
| d. | **and**, **or**, **not** |

ANS: C

6. Which of the following is the correct **if** clause to determine whether **y** is in the range **10** through **50**, inclusive?

|  |  |
| --- | --- |
| a. | **if 10 < y or y > 50:** |
| b. | **if 10 > y and y < 50:** |
| c. | **if y >= 10 and y <= 50:** |
| d. | **if y >= 10 or y <= 50:** |

ANS: C

7. A Boolean variable can reference one of two values which are

|  |  |
| --- | --- |
| a. | **yes** or **no** |
| b. | **True** or **False** |
| c. | **T** or **F** |
| d. | **Y** or **N** |

ANS: B

8. What is the result of the following Boolean expression, given that **x = 5**, **y = 3**, and **z = 8**?

**x < y or z > x**

|  |  |
| --- | --- |
| a. | **True** |
| b. | **False** |
| c. | **8** |
| d. | **5** |

ANS: A

9. What is the result of the following Boolean expression, given that **x = 5**, **y = 3**, and **z = 8**?

**x < y and z > x**

|  |  |
| --- | --- |
| a. | **True** |
| b. | **False** |
| c. | **8** |
| d. | **5** |

ANS: B

10. What is the result of the following Boolean expression, given that **x = 5**, **y = 3**, and **z= 8**?

**not (x < y or z > x) and y < z**

|  |  |
| --- | --- |
| a. | **True** |
| b. | **False** |
| c. | **8** |
| d. | **5** |

ANS: B

11. What does the following expression mean?

**x <= y**

|  |  |
| --- | --- |
| a. | **x is less than y** |
| b. | **x is less than or equal to y** |
| c. | **x is greater than y** |
| d. | **x is greater than or equal to y** |

ANS: B

12. Which of the following is the correct **if** clause to determine whether **choice** is anything other than **10**?

|  |  |
| --- | --- |
| a. | **if choice != 10:** |
| b. | **if choice != 10** |
| c. | **if choice <> 10:** |
| d. | **if not(choice < 10 and choice > 10):** |

ANS: A

13. When using the \_\_\_\_\_\_\_\_\_\_ logical operator, both subexpressions must be true for the compound expression to be true.

|  |  |
| --- | --- |
| a. | **or** |
| b. | **and** |
| c. | **not** |
| d. | either **or** or **and** |

ANS: B

14. In Python the \_\_\_\_\_\_\_\_\_\_ symbol is used as the not-equal-to operator.

|  |  |
| --- | --- |
| a. | **==** |
| b. | **<>** |
| c. | **<=** |
| d. | **!=** |

ANS: D

15. In Python the \_\_\_\_\_\_\_\_\_\_ symbol is used as the equality operator.

|  |  |
| --- | --- |
| a. | **==** |
| b. | **<>** |
| c. | **<=** |
| d. | **!=** |

ANS: A

16. Which of the following will hide the turtle if it is visible?

|  |  |
| --- | --- |
| a. | **if turtle.isvisible():**  **turtle.invisible()** |
| b. | **if turtle.isvisible**  **turtle.hideturtle()** |
| c. | **turtle.isvisible():**  **turtle.hide()** |
| d. | **if turtle.isvisible():**  **turtle.hideturtle()** |

ANS: D

17. Which of the following will determine if the turtle's pen is up and will change it to down if that is the case?

|  |  |
| --- | --- |
| a. | **if turtle.isup():**  **turtle.isdown()** |
| b. | **if turtle.isdown**  **turtle.penup()** |
| c. | **if not(turtle.isdown()):**  **turtle.pendown()** |
| d. | **if not(turtle.penup())**  **turtle.penup()** |

ANS: C

**COMPLETION**

1. The \_\_\_\_\_\_\_\_\_\_\_ statement is used to create a decision structure.

ANS: **if**

2. In flowcharting, the \_\_\_\_\_\_\_\_\_\_ symbol is used to represent a Boolean expression.

ANS: diamond

3. A(n) \_\_\_\_\_\_\_\_\_\_ decision structure provides only one alternative path of execution.

ANS: single alternative

4. In a decision structure, the action is \_\_\_\_\_\_\_\_\_\_\_ executed because it is performed only when a specific condition is true.

ANS: conditionally

5. A(n) \_\_\_\_\_\_\_\_\_\_ operator determines whether a specific relationship exists between two values.

ANS: relational

6. A(n) \_\_\_\_\_\_\_\_\_\_ statement will execute one block of statements if its condition is true or another block if its condition is false.

ANS: **if-else**

7. Python provides a special version of a decision structure known as the \_\_\_\_\_\_\_\_\_\_ statement, which makes the logic of the nested decision structure simpler to write.

ANS: **if-elif-else**

8. The logical \_\_\_\_\_\_\_\_\_\_ operator reverses the truth of a Boolean expression.

ANS: **not**

9. Boolean variables are commonly used as \_\_\_\_\_\_\_\_\_\_ to indicate whether a specific condition exists.

ANS: flags

10. A(n) \_\_\_\_\_\_\_\_\_\_\_ expression is made up of two or more Boolean expressions.

ANS: compound

11. The **turtle.isdown()** function returns \_\_\_\_\_\_\_\_\_\_\_ if the turtle's pen is down.

ANS: **True**