Test Bank for Problem Solving with C++: The Object of Programming, 8/e
Chapter 2 C++ Basics

TRUE/FALSE

1. In the following code fragment, x has the value of 3.
   int x = 3;
   ANSWER: TRUE
2. The body of a do-while loop always executes at least once.
   ANSWER: TRUE
3. The body of a while loop may never execute.
   ANSWER: TRUE
4. The opposite of (x >3 && x < 10) is (x < 3 && x > 10)
   ANSWER: FALSE
5. The integer 0 is considered true.
   ANSWER: FALSE
6. Loops are used when we need our program to make a choice between two or more things.
   ANSWER: FALSE
7. It is legal to declare more than one variable in a single statement.
   ANSWER: TRUE
8. Variable names may begin with a number.
   ANSWER: FALSE
9. The opposite of less than is greater than
   ANSWER: FALSE
10. Every line in a program should have a comment.
    ANSWER: FALSE

Short Answer

1. << is called the stream _____ operator.
   ANSWER: insertion
2. The braces for a loop define the _____ of the loop.
   ANSWER: body
3. A loop that always executes the loop body at least once is known as a _____ loop.
   ANSWER: do-while
4. int myValue; is called a _____.
   ANSWER: variable declaration
5. What is the opposite of (x < 20 && x > 12)? _____
   ANSWER: (x >=20 || x <= 12)
6. What is the correct conditional statement to determine if x is between 19 and 99? _____
   ANSWER: (x >19 && x < 99)
7. Each time a loop body executes is known as an _____.
   ANSWER: iteration
8. if-else statements that are inside other if-else statements are said to be _____.
   ANSWER: nested

9. >> is known as the stream _____ operator.
   ANSWER: extraction
10. Is << used for input or output? _____
    ANSWER: output
11. The stream that is used for input from the keyboard is called _____.
    ANSWER: cin
12. The stream that is used for output to the screen is called _____.
    ANSWER: cout
13. Write the loop condition to continue a while loop as long as x is negative.
    _____
    ANSWER: while(x < 0)
14. When must we use braces to define the body of a contitional expression?
    _____
    ANSWER: When there are multiple statements in the body.
15. In a compound logical and (&&) expression, the evaluation of the expression stops once one of the terms of the expression is false. This is known as _____ evaluation.
    ANSWER: short-circuit evaluation

Multiple Choice

1. Which of the following is a valid identifier?
   a. 3com
   b. three_com
   c. 3_com
   d. 3-com
   e. dollar$
   ANSWER: C
2. Which of the following is not a valid identifier?
   a. return
   b. myInt
   c. myInteger
   d. total3
   ANSWER: A
3. What is the value of x after the following statements?
   ```
   int x, y, z;
   y = 10;
   z = 3;
   x = y * z + 3;
   ```
   a. Garbage
   b. 60
   c. 30
   d. 33
   ANSWER: D
4. What is the value of x after the following statements?

```
int x;
x = 0;
x = x + 30;
```

a. 0
b. 30
c. 33
d. garbage

ANSWER: B

5. What is the value of x after the following statements?

```
int x;
x = x + 30;
```

a. 0
b. 30
c. 33
d. garbage

ANSWER: D

6. What is the output of the following code?

```
float value;
value = 33.5;
cout << value << endl;
```

a. 33.5
b. 33
c. value
d. garbage

ANSWER: A

7. What is the output of the following code?

```
float value;
value = 33.5;
cout << "value" << endl;
```

a. 33.5
b. 33
c. value
d. garbage

ANSWER: C

8. What is the output of the following code?

```
cout << "This is a \\" << endl;
```

a. This is a
b. This is a \
c. nothing, it is a syntax error
d. This is a \ endl

ANSWER: B

9. Which of the following lines correctly reads a value from the keyboard and stores it in the variable named myFloat?
   a. cin > > myFloat;
   b. cin << myFloat;
   c. cin >> "myFloat";

d. cin >> myFloat >> endl;

ANSWER: A

10. Another way to write the value 3452211903 is
    a. 3.452211903e09
    b. 3.452211903e-09
    c. 3.452211903x09
    d. 3452211903e09

    ANSWER: A
11. Which of the following statements is NOT legal?
    a. char ch='b';
    b. char ch='0';
    c. char ch=65;
    d. char ch="cc";

    ANSWER: D
12. What is the value of x after the following statements?

```
float x;
x = 15/4;
```

    a. 3.75
    b. 4.0
    c. 3.0
    d. 60

    ANSWER: C
13. What is the value of x after the following statements?

```
int x;
x = 15/4;
```

    a. 15
    b. 3
    c. 4
    d. 3.75

    ANSWER: B
14. What is the value of x after the following statements?

```
int x;
x = 15 %4;
```

    a. 15
    b. 4
    c. 3
    d. 3.75

    ANSWER: C
15. What is the value of x after the following statement?

```
float x;
x = 3.0 / 4.0 + 3  + 2 / 5
```

    a. 5.75
    b. 5.75
    c. 1.75
    d. 3.75

    ANSWER: D

16. What is the value of x after the following statement?

```
float x;
x = 3.0 / 4.0 + (3  + 2 )/ 5
```

a. 5.75
b. 5.75
c. 1.75
d. 3.75

ANSWER: C

17. What is the value of x after the following statements?

```
double x;
x = 0;
x += 3.0 * 4.0;
x -= 2.0;
```

a. 22.0
b. 12.0
c. 10.0
d. 14.0

ANSWER: C

18. Given the following code fragment and the input value of 4.0, what output is generated?

```
float tax;
float total;

cout << "enter the cost of the item\n";
cin >> total;

if ( total >= 3.0)
{
        tax = 0.10;
        cout << total + (total * tax) << endl;
}
else
{
        cout << total << endl;
}
```

a. 3
b. 3.3
c. 4.0
d. 4.4

ANSWER: D

19. Given the following code fragment and the input value of 2.0, what output is generated?

```
float tax;
float total;

cout << "enter the cost of the item\n";
```

```
cin >> total;

if ( total >= 3.0)
{
        tax = 0.10;
        cout << total + (total * tax) << endl;
}
else
{
        cout << total << endl;
}
```

a. 2.2
b. 2.0
c. 3.1
d. 4.4

ANSWER: B

20. If x has the value of 3, y has the value of -2, and w is 10, is the following condition true or false?

```
if( x < 2 && w < y)
```

a. true
b. false

ANSWER: B

21. What is the correct way to write the condition y < x < z?
    a. (y < x < z)
    b. ((y < x) && z)
    c. ((y > x) || (y < z))
    d. ((y < x) && (x < z))

ANSWER: D

22. Given the following code fragment, and an input value of 3, what is the output that is generated?

```
int x;
cout <<"Enter a value\n";
cin >> x;
if(x=0)
{
        cout << "x is zero\n";
}
else
{
        cout << "x is not zero\n";
}
```

a. x is zero
b. x is not zero
c. unable to determine
d. x is 3

ANSWER: A (note it is an assignment!)

23. Given the following code fragment, and an input value of 5, what is the output?

```
int x;
if( x< 3)
{
    cout << "small\n";
}
else
{
    if( x < 4)
    {
            cout << "medium\n";
    }
    else
    {
            if( x < 6)
            {
                    cout << "large\n";
            }
            else
            {
                    cout << "giant\n";
            }
    }
}
```

a. small
b. medium
c. large
d. giant

ANSWER: C

24. Given the following code fragment, what is the output?

```
int x=5;
if( x > 5)
    cout << "x is bigger than 5. ";
    cout <<"That is all. ";
cout << "Goodbye\n";
```

a. x is bigger than 5. That is all
b. x is bigger than 5
c. That is all. Goodbye
d. Goodbye

ANSWER: C

25. Executing one or more statements one or more times is known as:
a. selection
b. iteration
c. sequence
d. algorithm

ANSWER: B

26. Given the following code fragment, what is the final value of y?

```
int x, y;
x = -1;
y = 0;
while(x <= 3)
{
    y += 2;
    x += 1;
}
```

a. 2
b. 10
c. 6
d. 8

ANSWER: B

27. Given the following code fragment, what is the final value of y?

```
int x, y;
x = -1;
y = 0;
while(x < 3)
{
    y += 2;
    x += 1;
}
```

a. 2
b. 10
c. 6
d. 8

ANSWER: D

28. What is the output of the following code fragment?

```
int x=0;
while( x < 5)
    cout << x << endl;
    x ++;
cout << x << endl;
```

a. 0
b. 5
c. 4
d. unable to determine

ANSWER: D (infinite loop)

29. What is the final value of x after the following fragment of code executes?

```
int x=0;
do
{
    x++;
}while(x > 0);
```

a. 8

b. 9
c. 10
d. 11
e. infinite loop.

ANSWER: E

30. Given the following code fragment, which of the following expressions is always true?

```
int x;
cin >> x;
```

a. if(x < 3)
b. if(x==1)
c. if((x / 3) >1)
d. if(x = 1)

ANSWER: D