Test Bank for Problem Solving with C++: The Object of Programming, 9/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
16. The _____ keyword in C++11 determines the type of a variable based on the data type that the variable is set to.
    ANSWER: auto

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 1

ANSWER: D (because x is assigned the value of 1 in the if statement which in turn is interpreted as true.)

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

31. What is the advantage of the C++11 integer data types over the old data types?
    a. Number of bits allocated changes dynamically as needed
    b. No advantage, just new names
    c. Specifies exact size in bits
    d. Higher precision

ANSWER: C