

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: $(x \geq 20 \ || \ x \leq 12)$
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

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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 conditional 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?

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- 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. $((y > x) \parallel (y < z))$
- 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