Name_____

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

1) A compound statement that contains variable declarations is called a _____.

1) <u>block</u>

2) Variables defined inside a set of braces are said to be _____ to that block of code.

2) <u>local</u>

3) Write the loop condition to continue a while loop as long as x is negative.

3) <u>x < 0</u>

4) A loop that iterates one too many or one too few times is said to be _____.

4) <u>off by one</u>

5) << is called the _____ operator.

5) <u>insertion</u>

6) Is << used for input or output?

6) <u>output</u>

7) What is the correct conditional statement to determine if x is between 19 and 99?

7) <u>x > 19 && x < 99</u>

8) The braces for a loop define the _____ of the loop.

8) <u>body</u>

9) A _____ loop always executes the loop body at least once, regardless of the loop condition.

9) <u>do-while</u>

10) if-else statements that are inside other if-else statements are said to be _____.

10) <u>nested</u>

11) Each time a loop body executes is known as an _____.

11) <u>iteration</u>

12) A switch statement variable must be _____.

12) <u>int, bool, char, or enum</u>

13) The code following the _____ case is executed if none of the other cases are matched in a switch statement.

13) <u>default</u>

14) The stream that is used for output to the screen is called _____.

14) <u>cout</u>

15) The stream that is used for input from the keyboard is called _____.

15) <u>cin</u>

16) A loop that always executes the loop body at least once is known as a _____ loop.

16) <u>do-while</u>

17) When must we use braces to define the body of a conditional expression?

17) <u>multiple statements</u>

18) >> is known as the _____ operator.

18) <u>extraction</u>

19) int myValue; is called a _____.

19) <u>variable declaration</u>

20) A _____ expression is an expression that can be thought of as being true or false.

20) _____boolean_____

21) The compiler always pairs an else with _____.

21) ___the nearest if___

22) 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.

22) ___short-circuit evaluation___

23) _____ is a type whose values are defined by a list of constants of type int.

23) ___enumerated data type___

24) Each repetition of a loop body is called _____.

24) ___iteration___

25) What is the opposite of (x < 20 && x > 12)?

25) ___x >= 21 || x <= 12___

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

26) What is the final value of x after the following fragment of code executes?

```
int x = 0;
do
{
    x++;
}while(x > 0);
```
A) 10
B) infinite loop.
C) 11
D) 1
E) None of the above

26) ___B___

27) Which of the following boolean expressions tests to see if x is between 2 and 15 (including 2 and 15)?
A) (x <= 15 || x >= 2)   B) (x >= 2 && x <= 15)
C) (2 <= x || x <= 15)   D) (2 <= x <= 15)

27) ___B___

28) What is the value of x after the following statements?
```
int x;
x = 15/4;
```
A) 3.75   B) 3   C) 15   D) 4

28) ___B___

29) What is wrong with the following for loop?
```
for(int i = 0;i < 10;i -- )
{
    cout << "Hello\n";
}
```
A) i is not initialized.   B) cannot use a for-loop for this
C) off-by-one error   D) infinite loop

29) ___D___

30) Which of the following is not a valid identifer?
A) total3   B) myInt   C) myInteger   D) return

30) ___D___

31) What is the value of x after the following code executes?

```
int x = 10;
if(x ++ > 10)
{
    x = 13;
}
```

   A) 10   B) 11   C) 14   D) 13

31)   **B**

32) What is the value of x after the following statements?

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

   A) 3.75   B) 3   C) 15   D) 4

32)   **B**

33) What is the output of the following code fragment?

```
int x = 0;
{
    int x = 13;
    cout << x <<",";
}
    cout << x << endl;
```

   A) 0,13   B) 13,13
   C) 13,0   D) Nothing, there is a syntax error.

33)   **C**

34) Which boolean operation is described by the following table?

A	B	Operation
True	True	True
True	False	False
False	True	False
False	False	False

   A) and   B) not
   C) or   D) none of the above

34)   **A**

35) 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) 6   B) 8   C) 10   D) 2

35)   **B**

36) 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) 14.0   C) 10.0   D) 12.0

36)   **C**

37) If you need to write a do-while loop that will ask the user to enter a number between 2 and 5   37) <u> E </u>
inclusive, and will keep asking until the user enters a correct number, what is the loop condition?
- A) (2 <= number && number <= 5)
- B) (2 > number && number > 5)
- C) (2 < 5 < number)
- D) (2 <= num <= 5)
- E) (2 > number || number > 5)

38) Given the following code fragment, what is the output?   38) <u> C </u>

```
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) Goodbye
- C) That is all. Goodbye
- D) x is bigger than 5

39) Given the following code fragment, which of the following expressions is always true?   39) <u> D </u>

```
int x;
cin >> x;
```
- A) if((x/3) > 1)
- B) if(x == 1)
- C) if(x < 3)
- D) if(x = 1)

40) Which of the following data types can be used in a switch controlling expression?   40) <u> E </u>
- A) char
- B) enum
- C) float
- D) int
- E) A, B, and D

41) What is the output of the following code fragment?   41) <u> D </u>

```
int x = 0;
while( x < 5)
    cout << x << endl;
    x ++;
cout << x << endl;
```
- A) 5
- B) 4
- C) 0
- D) unable to determine

42) What is the value of x after the following statements?   42) <u> C </u>

```
int x, y, z;
y = 10;
z = 3;
x = y * z + 3;
```
- A) 30
- B) 60
- C) 33
- D) garbage

43) What is the value of x after the following statements?   43) <u> A </u>

```
float x;
x = 15/4;
```
- A) 3.0
- B) 3.75
- C) 4.0
- D) 60

44) What is the value of x after the following statements?   44) __C__

      int x;

      x = x + 30;

  A) 33   B) 0   C) garbage   D) 30

45) Given the following code, what is the final value of i?   45) __C__

```
int i,j;
for(i = 0;i < 4;i ++)
{
    for(j = 0;j < 3;j ++ )
    {
        if(i == 2)
            break;
    }
}
```

  A) 3   B) 0   C) 4   D) 5

46) What is the value of x after the following code executes?   46) __C__

```
int x = 10;
if( ++ x > 10)
{
    x = 13;
}
```

  A) 11   B) 10   C) 13   D) 9

47) Given the following code fragment, and an input value of 3, what is the output that is generated?   47) __A__

```
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 not zero.   B) x is zero.

  C) unable to determine   D) x is 3.

48) If x is 0, what is the value of (!x == 0)?   48) __D__

  A) unable to determine   B) undefined

  C) true   D) false

49) What is the value of x after the following statements?   49) __D__

      int x;

      x = 0;

      x = x + 30;

  A) garbage   B) 0   C) 33   D) 30

50) What is the output of the following code?

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

A) value   B) 33   C) garbage   D) 33.5

50) <u> A </u>

51) What is the output of the following code fragment?

```
int i = 5;
switch(i)
{
case 0: i = 15;break;
case 1: i = 25;break;
case 2: i = 35;break;
case 3: i = 40;
default: i = 0;
}
cout << i <<endl;
```

A) 40   B) 0   C) 35   D) 15   E) 25

51) <u> B </u>

52) Which of the following are valid case statements in a switch?

A) case 1.5:   B) case 'ab':   C) case 1:   D) case x < 4:

52) <u> C </u>

53) Which of the following data types may be used in a switch statement?

A) long
B) enum
C) char
D) int
E) all of the above

53) <u> E </u>

54) Which of the following are equivalent to (!(x < 15 && y >= 3))?

A) (x > 15 || y < 3)
B) (x >= 15 && y < 3)
C) (x > 15 && y <= 3)
D) (x >= 15 || y < 3)
E) C and D

54) <u> D </u>

55) What is the correct way to write the condition y < x < z?

A) (y < x < z)   B) ((y > x) || (y < z))
C) ((y < x) && (x < z))   D) ((y < x) && z)

55) <u> C </u>

56) Which of the following are allowed in the third section of the for loop statement?

A) i --
B) cout << "Hello\n"
C) i += 2
D) i ++
E) all of the above

56) <u> E </u>

57) Another way to write the value 3452211903 is _____.

A) 3.452211903e09   B) 3.452211903e-09
C) 3452211903e09   D) 3.452211903x09

57) <u> A </u>

58) Executing one or more statements one or more times is known as 58) ___D___
    A) algorithm.   B) selection.   C) sequence.   D) iteration.

59) Which boolean operation is described by the following table? 59) ___B___

A	B	Operation
True	True	True
True	False	True
False	True	True
False	False	False

    A) not   B) or
    C) and   D) none of the above

60) Given the following code fragment, and an input value of 0, what is the output that is generated? 60) ___C___

```
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) unable to determine
    C) x is not zero.   D) x is 0.

61) What is the output of the following code fragment if x is 15? 61) ___A___
```
if(x < 20)
    if(x < 10)
        cout << "less than 10 ";
else
    cout << "large\n";
```
    A) large   B) less than 10
    C) nothing   D) no output, syntax error

62) If a programming language does not use short-circuit evaluation, what is the output of the following code fragment if the value of myInt is 0? 62) ___A___

```
int other = 3, myInt;
if(myInt != 0 && other % myInt != 0)
    cout << "other is odd\n";
else
    cout << "other is even\n";
```
    A) run-time error, no output   B) other is odd
    C) 0   D) other is even

63) What is the value of x after the following statement?

    float x;

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

    A) 3.75   B) 4.75   C) 5.75   D) 1.75

63)   D

64) Which of the following lines correctly reads a value from the keyboard and stores it in the variable named myFloat?

    A) cin >> myFloat >> endl;   B) cin >> "myFloat";

    C) cin << myFloat;   D) cin >> myFloat;

64)   D

65) Given the following enumerated data type definition, what is the value of SAT?

    enum myType{SUN,MON,TUE,WED,THUR,FRI,SAT,NumDays};

    A) 6   B) 7   C) 8   D) 5   E) unknown

65)   A

66) Which of the following is not a good reason for choosing a certain loop control?

    A) the condition for ending the loop

    B) if the loop is in a function

    C) what the loop does

    D) the minimum number of iterations of the loop

66)   B

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

```
int x;
cout << "Enter a value\n";
cin >> 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) medium   B) small   C) large   D) giant

67)   C

68) Which of the following symbols has the highest precedence?

    A) &&   B) -   C) ++   D) ||

68)   C

69) How many times is "Hi" printed to the screen?   69) __C__
    for(int i = 0;i < 14;i ++);
        cout << "Hi\n";
    A) 13   B) 15   C) 1   D) 14

70) Given the following code fragment and the input value of 4.0, what output is generated?   70) __C__
        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) 4.4   D) 4.0

71) Given the following code fragment, what is the final value of y?   71) __C__
        int x, y;
        x = -1;
        y = 0;
        while(x <= 3)
        {
            y += 2;
            x += 1;
        }
    A) 6   B) 2   C) 10   D) 8

72) Which loop structure always executes at least once?   72) __D__
    A) sentinel   B) while   C) for   D) do-while

73) What is the value of x after the following statement?   73) __B__
        float x;
        x = 3.0/4.0 + 3 + 2/5;
    A) 1.75   B) 3.75   C) 5.75   D) 4.75

                                                                        A
74) If you want a loop to quit iterating if x < 10 and y > 3, what would be the proper loop condition   74) _____
    test?
    A) (x >= 10 || y <= 3)   B) (x < 10 && y > 3)
    C) (x >=10 && y <= 3)   D) (x > 10 || y < 3)

75) When testing a program with a loop, which of the following tests should be done?   75) <u>E</u>
    A) the maximum number of iterations
    B) no iterations of the loops
    C) one less than the maximum number of iterations
    D) one more than the maximum number of iterations
    E) A, B, and C

76) Which of the following is a valid identifier?   76) <u>B</u>
    A) 3_com   B) three_com   C) dollar$ D) 3-com   E) 3com

77) What is the output of the following code?   77) <u>C</u>
```
cout << "This is a \\" << endl;
```
    A) This is a \ endl   B) Nothing, it is a syntax error.
    C) This is a \   D) This is a

78) What is the output of the following code fragment?   78) <u>D</u>
```
{
    int x = 13;
    cout << x <<",";
}
    cout << x << endl;
```
    A) 13,13   B) 13,0
    C) 0,13   D) Nothing, there is a syntax error.

79) What is the value of the following expression?   79) <u>A</u>
```
(true && (4/3 || !(6)))
```
    A) true   B) illegal syntax   C) false   D) 0

80) Given the following enumerated data type definition, what is the value of SAT?   80) <u>A</u>
```
enum myType{SUN=3,MON=1,TUE=3,WED,THUR,FRI,SAT,NumDays};
```
    A) 7   B) 5   C) 6   D) 8   E) unknown

81) Given the following code fragment and the input value of 2.0, what output is generated?   81) <u>B</u>
```
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) 3.1   B) 2.0   C) 2.2   D) 4.4

82) What is wrong with the following switch statement?

```
int ans;
cout << "Type y for yes on n for no\n";
cin >> ans;
switch (ans)
{
case 'y':
case 'Y': cout << "You said yes\n"; break;
case 'n':
case 'N': cout << "You said no\n"; break;
default: cout <<"invalid answer\n";
}
```

   A) nothing   B) There are no break statements on 2 cases.
   C) ans is a int.   D) break; is illegal syntax.

82)   __C__

83) Which of the following statements is NOT legal?

   A) char ch = "cc";   B) char ch = '0';   C) char ch = 65;   D) char ch = 'b';

83)   __A__

84) What is the output of the following code?

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

   A) 33.5   B) garbage   C) value   D) 33

84)   __A__

85) Given the following code, what is the final value of i?

```
int i;
for(i = 0; i <= 4;i ++ )
{
    cout << i << endl;
}
```

   A) 0   B) 5   C) 3   D) 4

85)   __B__

TRUE/FALSE. Write 'T' if the statement is true and 'F' if the statement is false.

86) The body of a do-while loop always executes at least once.

86)   __T__

87) The integer 0 is considered true.

87)   __F__

88) All switch statements can be converted into nested if-else statements.

88)   __T__

89) 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)

89)   __F__

90) The opposite of less than is greater than.

90)   __F__

91) After the following code fragment, x has the value of 3.
    int x = 3;

91)   __T__

92) In an enumerated data type, different constants may not have the same value.

92)   __F__

93) The body of a while loop may never execute. 93) __T__

94) All nested if-else statements can be converted into switch statements. 94) __F__

95) A boolean expression may evaluate to more than 2 values. 95) __F__

96) A break statement in a switch stops your program. 96) __F__

97) It is illegal to make function calls inside a switch statement. 97) __F__

98) The opposite of (x > 3 && x < 10) is (x < 3 && x > 10). 98) __F__

99) Loops are used when we need our program to make a choice between two or more things. 99) __F__

100) A semicolon by itself is a valid C++ statement. 100) __T__

101) Every line in a program should have a comment. 101) __F__

102) It is legal to declare more than one variable in a single statement. 102) __F__

103) Variable names may begin with a number. 103) __F__

104) If there is a break statement in the innermost loop in a set of nested loops the break statement causes all enclosing loops to exit. 104) __F__