CS 161 Exam I Winter 2019 Form 1

Please put your <u>name, ID, and form number</u> on the scantron

True (A) / False (B) (28 pts, 2 pts each)

1. In programming, the terms "line" and "statement" always mean the same thing. *F*

2. Machine language is an example of a high-level language. *F*

3. **(x>=15 || y < 3)** is equivalent to **(!(x<15 && y>=3))**. *T*

4. There are 8 ~~bytes~~ bits in one ~~bit~~ byte. *F*

5. **cin** reads a line of input, including leading and embedded spaces, and stores it in a string object. *F*

6. The **default** section is *not* required in a **switch** statement. *F*

7. In C++, the expression **if (x < y < z)** will determine whether **x** is less than **y** and less than **z.** *F*

8. When an **if** statement is placed within the conditionally-executed code of another **if** statement, this is known as nesting. *T*

9. What is the value of the expression: **!false || (true && false)** *T*

10. You may nest **while** and **do-while** loops but you may ~~not~~ nest **for** loops. *F*

11. The **while** loop is considered a pre-test loop and the **do-while** loop is considered a post-test loop. *T*

12. A function can have no parameters, one parameter, or many parameters and can return only one value *T*

13. It is possible for a void function to have parameters. *T*

14. A function prototype is a declaration, but not a definition. *T*

Multiple Choice (72 pts, 3 pts each)

15. This if statement should assign the heavier weight to heaviest and the lighter weight to lightest. What is wrong with this code?
```
if (weight1 > weight2)
    heaviest = weight1;
    lightest = weight2;
```

   A. Nothing. It works fine.
   B. **heaviest** is **weight1** regardless of the if statement.
   C. The statement is written incorrectly – crash.
   D. **lightest** is **weight2** regardless of the if statement.

16. _____ are used to translate each source code instruction into the appropriate machine language instruction.
   A. Modules
   B. Runtime libraries
   C. Compilers
   D. Preprocessor directives

   executable

17. A set of well-defined steps for performing a task or solving a problem is known as a(n):
   A. Hierarchy chart
   B. Algorithm
   C. Instruction set
   D. Statement

18. Three primary activities of a program are:
    A. Variable definitions, operators, lists of key words
    B. Lines, statements, punctuation
    C. Input, processing, output
    D. Integer, floating-point, character definitions

19. A variable's _visibility_ _____ is the part of the program that has access to the variable.
    A. Scope
    B. Value
    C. Data type
    D. Assignment

20. What is the output of the following statement?
```
cout << (float) (5 * (9 % 4) / 2) + 2.5 << endl;
```
    A. 5
    B. 15
    C. 2.5
    D. 4.5

5/2 2

21. What will be the output after the following lines of code execute?
```
bool choice;
choice = true;
cout << "Your choice is " << choice << endl;
```
    A. `true`
    B. `Your choice is true`
    C. `Your choice is 1`
    D. `Your choice is choice`

22. A character literal is _____, whereas a string literal is _____.
    A. enclosed in quotation marks, enclosed in brackets
    B. enclosed in brackets, enclosed in quotation marks
    C. enclosed in double quotation marks, enclosed in single quotation marks
    D. enclosed in single quotation marks, enclosed in double quotation marks

23. Which of the following is *not* a valid C++ identifier?
    A. `April2019`
    B. `employee_num`
    C. `_2user`
    D. `2user`

24. Given that `x = 2`, `y = 1`, `z = 0`, what will the following `cout` statement display?
```
cout << "answer = " << (x && y && !z) << endl;
```
    A. `answer = 0`
    B. `answer = 1`
    C. `answer = 2`
    D. `answer = (x && y && !z)`

25. When a variable is assigned a number that is too large for its data type, it
    A. underflows
    B. overflows
    C. reverses
    D. converts

26. After the following code executes, what is the value of **my_value** if the user enters **3**?

```cpp
cin >> my_value;
if (my_value > 2)
    my_value = my_value + 5;
else if (my_value > 5)
    my_value = my_value + 10;
else
    my_value = my_value + 20;
```

    A. 23
    B. 18
    C. 8
    D. 3

27. What is the output of the following segment of code if the value **4** is input by the user?

```cpp
int num;
int total = 0;
cout << "Enter a number from 1 to 10: ";
cin >> num;
switch (num) {
    case 1:
    case 2:     total = 5;
    case 3:     total = 10;
    case 4:     total = total + 3;
    case 8:     total = total + 6;
    default:    total = total + 4;
}
cout << total << endl;
```

    A. 3
    B. 9
    C. 13
    D. 23

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

```cpp
int x = 5;
if (x = 2)
    cout << "This is true!" << endl;
else
    cout << "This is false!" << endl;
    cout << "That's all, folks!" << endl;
```

    A. This is true!
    B. This is false!
    C. This is false!
       That's all, folks!
    D. This is true!
       That's all, folks!

29. A statement that causes a loop to terminate early is
    A. **break**
    B. **terminate**
    C. **re-iterate**
    D. **continue**
    E. None of above

30. What is the output of the following code segment?
```
n = 1;
while (n <= 5)
    cout << n << '  ';
    n++;
```
    A. 1 2 3 4 5
    B. 1 1 … and on forever
    C. 1 2 3 4 5 6
    D. 1 2 3 4

31. How many times will the following loop display "**Looping!**"?
```
for (int i = 5; i > 0; i--)
    for (int j = 0; j <= 4; j++)
        cout << "Looping!" << endl;
```
    A. 15
    B. 20
    C. 21
    D. an infinite number of times

32. A collection of statements that performs a specific task is a(n)
    A. loop
    B. variable
    C. constant
    D. function

33. A function is executed when it is
    A. defined
    B. prototyped
    C. declared
    D. called

34. What is the output of the following code segment?
```
string str = "Hello World";
cout << str.at(5) << endl;
```
    A. a space character
    B. **o**
    C. **W**
    D. **Hello**

35. If you need to write a function that will compute the cost of some candy, where each piece costs 25 cents, which would be an appropriate function declaration?
    A. **float calculateCost(char name);**
    B. **char calculateCost(int count);**
    C. **float calculateCost int count;**
    D. **float calculateCost(int count);**

36. Which of the following will randomly generate number from 90 – 100 (inclusive)?
    A. **int num = rand() % 101 – 10;**
    B. **int num = rand() % 100 – 10;**
    C. **int num = rand() % 11 + 90;**
    D. **int num = rand() % 10 + 90;**

4

37. Which of the following is a legal call to the displayOutput function?
```
void displayOutput(int total);
```

    A. `void displayOutput(myTotal);`
    B. `displayOutput(~~int~~ mytotal);`
    C. `displayOutput(myTotal);` ✓
    D. `cout << displayOutput(myTotal);`

38. In this while loop statement, `while(counter < 10)` the variable counter is an int. Which statement below is an equivalent way to write this while statement?
    A. `while(10 > counter)`
    B. `while( counter <= 9)`
    C. `while(9 > counter)`
    D. A and B are correct ✓

Extra Credit: (2 pts)
39. The difference between unary and binary operators is that binary operators
    A. return 2 values.
    B. require two statements to execute.
    C. require two operands. ✓
    D. can only be used with numeric variables.

40. What is wrong with this code?

```
int ShowMeTheMoney() {
    int cents, dollars;
    cout << "Enter dollars and cents";
    cin >> dollars , cents;
    return (dollars,cents);
}
```
logically

    A. You can't have a comma in the `cin` statement.
    B. You can't have a comma in the `return` statement.
    C. Both A & B. ✓
    D. There is nothing wrong with it.

41. Which of the following is evaluated first, given the expression:
```
A && B || C && !D
```
    A. `A && B`
    B. `B || C`
    C. `C && !D`
    D. `!D`

? • short circuit
precedence

42. True(A)/False(B) The **getline** function works like **cin** and stops reading characters when any whitespace is encountered.

F

43. True(A)/False(B) The compiler will give you a warning if you return a value in a void function.

error

g++ —Wall