

Saddleback College
Department of Computer Science
CS1A - Introduction to Computer Science I
Homi Bodhanwala
Exam 2, Basic Programming
Fall 2021

Name: _____ Student Number: _____

Instructions for this test:

- Write your name and student number at the top of this exam
- Make sure you finish before the end of the exam time
- Multiple choice questions only have one answer unless the question specifies that more than one answer is correct
- There are a total of 60 multiple choice questions (1 point each) in this part of the exam
- Circle your answer on the exam sheet AND bubble in the answer on your Scantron
- For questions that require you to write an answer, please write clearly. If your writing is illegible, your answer will be considered **incorrect**.
- Do your own work! DO NOT cheat!

Good Luck!

Section 1. Multiple Choice Questions (1 point each)

1. Arithmetic and logical operations take place within _____.
 - (a) Main memory (RAM)
 - (b) The CPU
 - (c) Secondary storage
 - (d) Input devices
 - (e) Output devices

2. All of the following are TRUE of secondary storage EXCEPT:
 - (a) It can store information permanently
 - (b) It is volatile
 - (c) It can (in general) store more data than main memory
 - (d) CD-ROMs are a type of secondary storage
 - (e) Hard drives are a type of secondary storage

3. (True or False) Microsoft Word is an example of a **system program**
 - (a) True
 - (b) False

4. (True or False) Analog signals represent information using 0s and 1s, while digital signals are continuously varying wave forms.
 - (a) True
 - (b) False

5. (True or False) Main memory (RAM) is connected directly to the CPU
 - (a) True
 - (b) False

6. (True or False) When you compile your program, the compiler identifies the **logic errors** and suggests how to correct them.
 - (a) True
 - (b) False

7. The basic commands that a computer performs are _____, and performance of arithmetic and logical operations.
 - (a) input, file, list
 - (b) input, output, storage
 - (c) output, folder, storage
 - (d) storage, directory, log
 - (e) reading, writing, communication

8. Main memory is an ordered sequence of items, called _____.
- (a) pixels
 - (b) memory cells
 - (c) registers
 - (d) addresses
9. How many bits make one byte?
- (a) 32
 - (b) 16
 - (c) 8
 - (d) 1000
10. Which character encoding scheme has 65,536 characters?
- (a) ASCII
 - (b) Unicode
11. A program called a(n) _____ translates instructions written in high-level languages into machine code.
- (a) assembler
 - (b) decoder
 - (c) compiler
 - (d) linker
12. A program called a(n) _____ combines the object program with the programs from libraries.
- (a) assembler
 - (b) decoder
 - (c) compiler
 - (d) linker
13. A program that loads an executable program into main memory is called a(n) _____.
- (a) assembler
 - (b) loader
 - (c) compiler
 - (d) linker
14. The ASCII data set consists of _____ characters.
- (a) 65,536
 - (b) 32
 - (c) 4,096
 - (d) 128

15. (True or False) In C++, **reserved words** are the same as **predefined identifiers**.
- (a) True
 - (b) False
16. (True or False) An operator that has only one operand is called a **unique** operator.
- (a) True
 - (b) False
17. (True or False) Suppose we declare a variable `sum` as an `int`. The statement `sum += 7;` is equivalent to the statement `sum = sum + 7;`.
- (a) True
 - (b) False
18. Which of the following is a **reserved word** in C++?
- (a) `char`
 - (b) `Char`
 - (c) `CHAR`
 - (d) `character`
19. Which of the following is a legal identifier?
- (a) `program 1`
 - (b) `program!`
 - (c) `1program`
 - (d) `None of the above`
20. The memory allocated for a `float` value is _____ bytes.
- (a) 2
 - (b) 4
 - (c) 8
 - (d) 16
21. The expression `static_cast<int>(6.9) + static_cast<int>(7.9)` evaluates to _____.
- (a) 13
 - (b) 14
 - (c) 14.8
 - (d) 15

22. Suppose that `alpha` and `beta` are `int` variables. The statement `alpha = --beta;` is equivalent to the statement(s) _____.
- (a) `alpha = 1 - beta;`
 - (b) `alpha = beta - 1;`
 - (c) `beta = beta - 1;`
`alpha = beta;`
 - (d) `alpha = beta;`
`beta = beta - 1;`
23. _____ are executable statements that inform the user what to do.
- (a) Variables
 - (b) Prompt lines
 - (c) Named constants
 - (d) Expressions
24. (True or False) When reading data into a `char` variable, after skipping any leading whitespace characters, the **extraction operator** (`>>`) finds and stores only the next character; reading stops after a single character.
- (a) True
 - (b) False
25. (True or False) Entering a `char` value into an `int` variable causes serious errors, called **input failure**.
- (a) True
 - (b) False
26. (True or False) If **input failure** occurs in a C++ program, the program terminates immediately and displays an error message.
- (a) True
 - (b) False
27. (True or False) You can use the function named `getline` to read a `string` containing blanks.
- (a) True
 - (b) False

28. Suppose that `x` and `y` are `int` variables, and `z` is a `double` variable. The input is:

28 32.6 12

Choose the values of `x`, `y`, and `z` after the following statement executes:

```
cin >> x >> y >> z;
```

- (a) `x = 28, y = 32, z = 0.6`
- (b) `x = 28, y = 32, z = 12.0`
- (c) `x = 28, y = 12, z = 32.6`
- (d) `x = 28, y = 12, z = 0.6`

29. Suppose that `x` and `y` are `int` variables, and `ch` is a `char` variable. The input is:

4 2 A 12

Choose the values of `x`, `y`, and `ch` after the following statement executes:

```
cin >> x >> ch >> y;
```

- (a) `x = 4, ch = '2', y = 12`
- (b) `x = 4, ch = A, y = 12`
- (c) `x = 4, ch = ' ', y = 2`
- (d) This results in input failure

30. When you want to process only partial data, you can use the stream function _____ to discard a portion of the input.

- (a) `clear`
- (b) `skip`
- (c) `ignore`
- (d) `delete`

31. Suppose that `ch1` and `ch2` are `char` variables and the input is:

WXYZ

What is the value of `ch2` after the following statements execute?

```
cin.get(ch1);  
cin.putback(ch1);  
cin >> ch2;
```

- (a) `W`
- (b) `X`
- (c) `Y`
- (d) `Z`

32. Suppose that `ch1` and `ch2` are `char` variables and the input is:

WXYZ

What is the value of `ch2` after the following statements execute?

```
cin >> ch1;
ch2 = cin.peek();
cin >> ch2;
```

- (a) W
- (b) X
- (c) Y
- (d) Z

33. What is the output of the following statements?

```
cout << "123456789012345678901234567890" << endl;
cout << setfill('#') << setw(10) << "Mickey"
<< setfill(' ') << setw(10) << "Donald"
<< setfill('*') << setw(10) << "Goofy" << endl;
```

- (a) 123456789012345678901234567890
####Mickey Donald*****Goofy
- (b) 123456789012345678901234567890
####Mickey####Donald*****Goofy
- (c) 123456789012345678901234567890
####Mickey####Donald#####Goofy
- (d) 23456789012345678901234567890
***Mickey####Donald#####Goofy

34. Suppose that `x = 1565.683`, `y = 85.78`, and `z = 123.982`. What is the output of the following statements?

```
cout << fixed << showpoint;
cout << setprecision(3) << x << ' ';
cout << setprecision(4) << y << ' ' << setprecision(2) << z << endl;
```

- (a) 1565.683 85.8000 123.98
- (b) 1565.680 85.8000 123.98
- (c) 1565.683 85.7800 123.98
- (d) 1565.683 85.780 123.980

35. Manipulators without parameters are part of which header file?

- (a) `iostream`
- (b) `iomanip`
- (c) `ifstream`
- (d) `manip`

36. Suppose that `fout` is an `ofstream` variable and output is to be stored in the file `outputData.out`. Which of the following statements opens the file `outputData.out` and associates `fout` to the output file?
- (a) `fout("outputData.out");`
 - (b) `fout.open("outputData.out");`
 - (c) `open(fout,"outputData.out");`
 - (d) `open.fout("outputData.out");`
37. (True or False) A **control structure** alters the normal sequential flow of execution in a program.
- (a) True
 - (b) False
38. (True or False) The result of a logical expression CANNOT be assigned to an `int` variable, but it can be assigned to a `bool` variable.
- (a) True
 - (b) False
39. (True or False) The operators `!`, `&&`, and `||` are called **relational operators**.
- (a) True
 - (b) False
40. (True or False) In C++, `&&` has a higher precedence than `||`.
- (a) True
 - (b) False
41. (True or False) The expression `(x >= 0 && x <= 100)` evaluates to `false` if either `x < 0` or `x >= 100`.
- (a) True
 - (b) False
42. Which of the following is a **parameterized stream manipulator**?
- (a) `endl`
 - (b) `fixed`
 - (c) `scientific`
 - (d) `setfill`
 - (e) None of the above
43. (True or False) If the expression in an `assert` statement evaluates to `true`, the program terminates.
- (a) True
 - (b) False

44. Suppose that `x` is an `int` variable. Which of the following expressions always evaluates to `true`?

- (a) `(x > 0) || (x <= 0)`
- (b) `(x >= 0) || (x == 0)`
- (c) `(x > 0) && (x <= 0)`
- (d) `(x > 0) && (x == 0)`

45. When one control statement is located within another, it is said to be _____.

- (a) blocked
- (b) compound
- (c) nested
- (d) closed

46. Assume you have three `int` variables: `x = 2`, `y = 6`, and `z`. Choose the value of `z` in the following expression:
`z = (y / x > 0) ? x : y;`

- (a) 2
- (b) 3
- (c) 4
- (d) 6

47. You can disable assert statements by using which of the following?

- (a) `#include <cassert>`
- (b) `#define <assert>`
- (c) `#clear NDEBUG`
- (d) `#define NDEBUG`

48. What is the output of the following C++ code?

```
int x = 55;
int y = 5;

switch (x % 7)
{
    case 0:
    case 1:
        y++;

    case 2:
    case 3:
        y = y + 2;

    case 4:
        break;

    case 5:
    case 6:
        y = y - 3;
}

cout << y << endl;
```

- (a) 2
- (b) 5
- (c) 8
- (d) 10

49. (True or False) The output of the following C++ code is 2 3 4 5.

```
int n = 1;
while (n < 5)
{
    n++;
    cout << n << " ";
}
```

- (a) True
- (b) False

50. The control statements in the **for** loop include the **initial statement**, **loop condition**, and **update statement**.

- (a) True
- (b) False

51. (True or False) The following for loop executes **exactly** 20 times.

```
for (int i = 0; i <= 20; i++)
{
    cout << i;
}
```

- (a) True
- (b) False

52. What is the output of the following C++ code?

```
int count = 1;
int num = 25;

while (count < 25)
{
    num = num - 1;
    count++;
}

cout << count << " " << num << endl;
```

- (a) 24 0
- (b) 24 1
- (c) 25 0
- (d) 25 1

53. Which executes first in a **do...while** loop?

- (a) the statement (or body)
- (b) loop condition
- (c) the expression
- (d) update statement

54. What executes immediately after a **continue** statement in a **while** and **do-while** loop?

- (a) loop-continue test
- (b) update statement
- (c) the expression
- (d) the body of the loop

55. The _____ statement can be used to eliminate the use of certain (flag) variables.

- (a) **while**
- (b) **switch**
- (c) **break**
- (d) **if**

56. Suppose the input to the program whose source code can be found below is 18 25 61 6 -1. What is the output of the program?

```
int num = 0;
int sum = 0;

cin >> num;

while (num != -1)
{
    sum = sum + num;
    cin >> num;
}

cout << sum << endl;
```

- (a) 92
- (b) 109
- (c) 110
- (d) 119

57. Suppose the input to the program whose source code can be found below is 26 34 61 4 -1. What is the output of the program?

```
int num = 0;
int sum = 0;

cin >> num;

for (int j = 1; j <= 4; j++)
{
    sum = sum + num;
    cin >> num;
}

cout << sum << endl;
```

- (a) 124
- (b) 125
- (c) 126
- (d) 127

58. What is the output of the following loop?

```
int count = 5;

cout << "St";

do
{
    cout << 'o';
    count--;
}
while (count <= 5);

cout << 'p';
```

- (a) Stop
- (b) Stoooooop
- (c) Stooooop
- (d) This is an infinite loop

59. Which of the following statements generates a random number between 0 and 50 (inclusive of both numbers)?

- (a) srand(time(0));
num = rand() % 50;
- (b) srand(time(10));
num = rand()/50;
- (c) srand(time(0));
num = rand() % 51;
- (d) srand(time(10));
num = rand() % 50;

60. What is the value of x after the following statements execute?

```
int x = 5;
int y = 30;

do
{
    x *= 2;
}
while (x < y);
```

- (a) 5
- (b) 10
- (c) 20
- (d) 40