

## CS101/Sample Test #1/

1. Circle the valid C++ identifiers in the following list (each line contains one possible identifier):

abx&  
XY\_s  
f2  
double  
8th\_number  
eighth\_number  
eighth number

2. For each of the following arithmetic expressions, give its value and check off whether the value is integer or floating-point. The first row is filled in for you:

Expression	Value	Integer	Floating Point
1+2	3	✓	
6 - 7.			
4 / 7			
13 % 10			
11 / 2.0			
3 * 4 % 6 + 4 * 5			

3. Give the values of the integer variables n and m after the following piece of code has executed:

```
int p=2, q;  
p++;  
q = p*2;  
p = q-1;  
q = q+p;
```

p	
q	

4. Consider the following file text file named boxes.dat (the file is in the current directory)

```
2 3 3
1 1 2
```

What is the output of the following program?

```
#include<iostream.h>
#include<fstream.h>

void main(){

    double height1, width1, length1;
    double height2, width2, length2, area1, area2;
    ifstream infile("boxes.dat");

    infile >> height1 >> width1 >> length1;
    area1 = width1 * length1 + 2 * height1 * width1
           + 2 * height1 * length1;
    cout << area1 << endl;

    infile >> height2 >> width2 >> length2;
    area2 = width2 * length2 + 2 * height2 * width2
           + 2 * height2 * length2;
    cout << area2 << endl;

    infile.close();
}
```

Output:

5. Which of the following must every C++ program have?
- (a) main
  - (b) #include
  - (c) //
  - (d) cin

6. Which operator will find the remainder when 15 is divided by 6?
- (a) 15 / 6
  - (b) 15 % 6
  - (c) 6 % 15
  - (d) 15. / 6
7. Which of the following is not considered hardware?
- (a) a CPU
  - (b) a keyboard
  - (c) an operating system
  - (d) a hard disk
8. Which of the following will not increment the int variable c by one?
- (a) c++;
  - (b) ++c;
  - (c) c + 1;
  - (d) c += 1;
9. Assume i is 1, j is 2, k is 3, and m is 2. Which code fragment prints YOU WIN to the screen?
- (a) 

```
if (i==1 && j>2) cout << "YOU WIN" << endl;
else cout << "YOU LOSE" << endl;
```
  - (b) 

```
if (k-3) cout << "YOU WIN" << endl;
else cout << "YOU LOSE" << endl;
```
  - (c) 

```
if (!(m==j)) cout << "YOU WIN" << endl;
else cout << "YOU LOSE" << endl;
```
  - (d) 

```
if (i+j >= k) cout << "YOU WIN" << endl;
else cout << "YOU LOSE" << endl;
```
10. A byte consist of \_\_\_\_\_ bits.
- (a) 8
  - (b) 24
  - (c) 255
  - (d) 256

11. A variable of `char` type can assume ----- different values.

- (a) 8
- (b) 24
- (c) 255
- (d) 256

12. The decimal representation of the octal number 76 is

- (a) 76
- (b) 13
- (c) 62
- (d) 118

13. Syntax is

- (a) A list of steps for solving a problem
- (b) A tax on cigarettes or alcohol
- (c) Grammar rules for a programming language
- (d) Approximately one billion bytes

14. Which is the syntax error in the following line of code?

```
cout >> "There is an error here!";
```

- (a) The operator `>>` should not be used with `cout`.
- (b) There should not be a semicolon at the end of the line.
- (c) The double quotes `"` should be replaced by single quotes `'`.
- (d) `cout` should be replaced by `cin`.

15. True-false

- (a) An expression containing the `&&` operator is true if either or both of its operands are true.
- (b) An expression containing the `||` operator is true if either or both of its operands are true.
- (c) It is reliable to test the equality of two variables `x` and `y` of `double` type by the expression `(x==y)`.
- (d) In a C++ program, `a++` always has exactly the same meaning as `++a`.
- (e) After the line of code below has executed, the variable `a` has value `'B'`.

```
char a = 'A'; a++;
```

- (f) It is easier to change a number from hexadecimal to binary than it is to change a number from decimal to binary.
- (g) C is an object oriented programming language.
- (h) C++ is an example of an assembly language.
- (i) Forgetting one or both of the braces that delimit a compound statement can lead to a syntax or logic error.
- (j) The following line of code generates an error.

```
const double PI=3.14159; PI +=1;
```

- (k) Using a reserved word as an identifier is a syntax error.
- (l) The following lines of code print out YOU WIN to the screen.

```
int a = 4;
if (++a == 4) cout << "YOU WIN" << endl;
```

- (m) If the body statement of an if statement is not indented, then a syntax error is generated.

Answers:

1. Only the second, third, and sixth are valid.
2.
  - row 2: -1, floating point
  - row 3: 0, integer
  - row 4: 3, integer
  - row 5: 5.5, floating point
  - row 6: 20, integer
3. p is 5, q is 11.
4. Output:
 

```
33
8
```
5. (a)
6. (b)
7. (c)
8. (c)
9. (d)
10. (a)

11. (d)

12. (c)

13. (c)

14. (a)

15. (a) F   (b) T   (c) F   (d) F   (e) T   (f) T   (g) F   (h) F   (i) T  
(j) T   (k) T   (l) F   (m) F