CS1428 Lab Final - A

# Name: Section:

# Final Exam Written Component: (<=1 hour)

The test is composed of three parts. There is a multiple-choice part worth **25** points, a program tracing portion worth **25** points, and a part where you must write a program which is worth **50** points. The exam is **25%** of your lab average. You should spend about a minute for each multiple-choice question, about **15** minutes on the tracing portion, and the remaining **80** minutes on the programming portion. Good luck!

## Multiple Choice:

1. Which of these is not an example of one of the four main parts of a program?
   1. using namespace std;
   2. #include <iostream>
   3. int main()
   4. int main;
2. Which is the proper way to declare an array of 50 integers named myCatMittens?
   1. array integers[50];
   2. integer[50] array myCatMittens;
   3. int myCatMittens[50];
   4. myCatMittens int[50];
3. How do you declare a named constant for the mathematical constant “e”?
   1. constant double E=2.7182818284;
   2. double E=2.7182818284;
   3. const double E=2.7182818284;
   4. double constant E=2.7182818284;
4. What is the value of the following expression: 43785 % 10
   1. 10
   2. 0
   3. 43785
   4. 5
5. What type of variable would be the best type to store 8.5 in?
   1. int
   2. float
   3. char
   4. string
6. What type of variable would be the best type to store “I Love Programming” in?
   1. int
   2. float
   3. char
   4. string
7. What is answer to the following expression.

int a = 7;

a\*= (8\*5/3+7/3\*2 - ++a);

cout << "a= "<<a;

* 1. 72
  2. 63
  3. 16
  4. 15

1. How do you declare, open, check, and read from an INPUT file named “input.txt” in to a variable “bob”?
   1. ifstream fin;  
      fin.open(input.txt);  
      if(! fin) { cout << “ERROR”; return 1; }  
      fin >> bob;
   2. ofstream fin;   
      fin.open(“input.txt”);  
      if(! fin) { cout << “ERROR”; return 1; }  
      fin << bob;
   3. ifstream fin;  
      fin.open(“input.txt”);  
      if(! fin) { cout << “ERROR”; return 1; }  
      fin >> bob;
   4. ifstream fin;  
      fin.open(“input.txt”);  
      if(! fin) { cout << “ERROR”; return 1; }  
      fin << bob;
   5. ifstream fin;  
      fin.open(“input.txt”);  
      if(fin.opened) { cout << “ERROR”; return 1; }  
      fin >> bob;
2. If you have an array named myCatSandy with 345 elements in it, how do you output every element to the screen?
   1. for(int i=0; i<=345; i++)  
      {  
       cout << myCatSandy[i] << endl;  
      }
   2. cout << myCatSandy[345] << endl;
   3. for(int i=0; i<345; i++)  
      {  
       cout << myCatSandy[i] << endl;  
      }
   4. for(int i=0 -> 345)  
      {  
       cout << myCatSandy[i] << endl;  
      }
   5. for(int i=0; <345; i+1)  
      {  
       cout << myCatSandy << endl;  
      }
3. What is answer to the Boolean expression? T&&(F^T||(F&&(T||F)))&&(F||(F&&F))
   1. True
   2. False
4. For the following snippet, what is the value of the variable myDogZeus after the function call? (See functionC in the tracing section at the end of the multiple choice)  
   int myDogZeus=5, bubblesThePoodle=8;  
   functionC(myDogZeus, bubblesThePoodle);
   1. 20
   2. 5
   3. 8
   4. 160
5. For the following snippet, what is the value of the variable myDogOreo after the function call? (See functionB in the tracing section at the end of the multiple choice)  
   int myDogOreo=5;  
   myDogOreo=functionB(myDogOreo,3);
   1. 125
   2. 15
   3. Not able to determine
   4. 5
6. How would you define a structure to represent an employee and store: their name, pay-rate, hours-worked, and wages earned?
   1. Employee structure  
      {  
       string name;  
       double payrate;  
       double hours;  
       double wages;  
      }
   2. struct Employee  
      {  
       string name;  
       double payrate;  
       double hours;  
       double wages;  
      };
   3. structure Employee  
      {  
       string name;  
       double payrate;  
       double hours;  
       double wages;  
      };
   4. struct Employee  
      {  
       string name;  
       double payrate;  
       double hours;  
       double wages;  
      }
7. What is the type and value of the following expression? 5.0 / 3
   1. int;1
   2. double; 1.0
   3. int; 1.66666…..
   4. double; 1.66666…..
8. What is the command to change directories in Linux?
   1. cd
   2. ls
   3. mv
   4. vim newDirectory
9. What is the big O for selection sort?
   1. O(N)
   2. O(N2)
   3. O(logN)
   4. O(NlogN)
10. What statement would you use to perform one action when a condition is true and a different action when the condition is false?
    1. switch-case
    2. do-while
    3. if-else
    4. while
11. There are two types of functions: What are they?
    1. by reference and by value
    2. void and return
    3. by reference and void
    4. by value and return
12. There are two methods of passing function parameters: What are they?
    1. by reference and by value
    2. void and return
    3. by reference and void
    4. by value and return
13. What statement would you use to loop a specific number of times?
    1. do-while
    2. while
    3. if
    4. for
14. What statement would you use to loop until something happens or while something is true?
    1. for
    2. if
    3. while
    4. do-while
15. Which statement runs ALWAYS something at LEAST one time, but could run it more?
    1. for
    2. while
    3. if
    4. do-while
16. Which statement can choose between multiple possible values for an expression, but only works with integers?
    1. for
    2. if-else if-else
    3. do-while
    4. switch-case
17. Which statement will execute based upon a group of conditions, each evaluated until one is true, and then the rest of them ignored?
    1. for
    2. if-else if-else
    3. do-while
    4. switch-case
18. What is the complier type we choose when we create a new C++ project in Eclipse?
    1. Cross Compiler
    2. GNU C++/G++ Compiler (Cygwin)
    3. Visual Studio
    4. Dev C++
19. (5 pts extra) What is special about this function?

void someFunction(int a, int b, int c, int d)

{

a = b;

b \*= c;

d+= (b\*c);

c = (a%b);

}

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1. (2 pts extra) What sort did we discuss in the bonus lab before thanksgiving?

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Program Tracing: (25 pts)

What is the output from the following program? To quickly figure this out, first figure out what functionA and functionB do. Then figure out how they are being called in main. You may assume prototypes were created for this code. What operation does functionA perform? What operation does functionB perform?

#include <iostream>

using namespace std;

int main()

{

const int SIZE=4;

int list[SIZE]={2,3,4,5};

int i, j;

cout << "Function A" << endl;

for(i=0; i<SIZE; i++)

{

cout << list[i] << " ? " << 5 << " = " << functionA(list[i], 5) << endl;

}

cout << endl << endl;

cout << "Function B" << endl;

i=1;

do

{

j=0;

while(j<SIZE)

{

cout << list[j] << " ? " << i << " = " << functionB(list[j], i) << endl;

j++;

}

i++;

} while(i<4);

return 0;

}

int functionA(int a, int b)

{

int res=0;

for(int i=0; i<b; i++)

{

res += a;

}

return res;

}

int functionB(int base, int power)

{

int res=1;

for(int i=1; i<power; i++)

{

res \*= base;

}

return res;

}

void functionC(int &q, int r)

{

q+=15;

r\*=q;

}