There are 18 QUESTIONS

Please make sure you don't miss any questions inadvertently.

Chapter 1

1. Convert the following binary 101000111 into a decimal value. – **3 points**

(1 * 2^8) + (0 * 2^7) + (1* 2^6) + (0* 2^5) + (0 * 2^4) + (0 * 2^3) + (1 * 2^2) + (1 * 2^1) + (1 * 2^0)

256 + 0 + 64 + 0 + 0 + 0 + 4 + 2 + 1 = 327

Chapter 2

2. Declare 3 variables with following characteristics: -**3 points**

- A Char variable, which is not initialized

```
char ch;
```

- A variable with the value of 18.

```
int x = 18;
```

- A constant variable with a value of 16.678

```
const float y = 16.678;
```

Chapter 3

3. Write an include statement, so the program can make use of input/output and strings – **2 points**

```
#include <iostream>
#include <string>
```

4. What is the result of the following statement: - **2 points**

cout << setw(15) << setfill('&') << "Worcester, MA" << setw(10) << setfill('*') << 06106;

&&Worcester, MA*****06106

5. Declare an output file stream variable, out_data. – **2 points**

```
ofstream out_data;
```

6. Write a code to associate the file, my_list.dat to the data_in variable. – **2 points**

```
ifstream data_in;
data_in.open("my_list.dat");
```

Chapter 4

7. Given the C++ incomplete statements below – 4 points

Enter two integers (left and right of the < operator) in the initialization of variable c so that the string "First option" is displayed when the code above is run.
NOTE: There is more than one correct answer. Any will do.

```
bool c = … < … ;
```

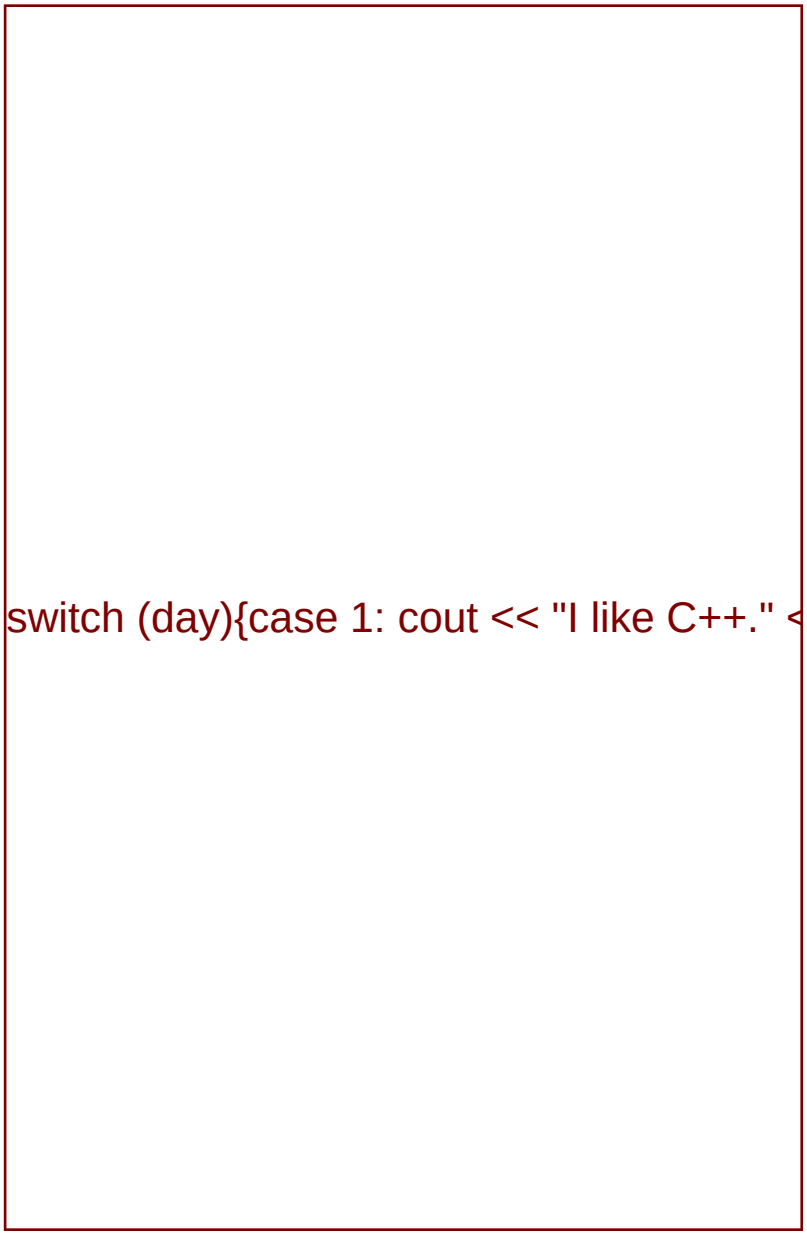
```
bool c = 2 < 1;
```

```
int b = 7;

if (b > 0 and !c)

cout << "First option" << endl;

else

cout << "Second option" << endl;
```

8. Write a SWITCH statement using the following statements (assume values for day has been provided): - **4 points**

```
if (day == 1)
  cout << “I like C++.”;
if (day == 2)
  cout << “I like Web Design.”;
if (day == 3)
  cout << “I love Math.”;
if (day == 4)
  cout << “I like Sociology.”;
if (day == 5)
  cout << “I like all my courses.”;
```

for any other value of variable day should be an error



Chapter 5

9. Write a portion of the program, using any loop of your choice, to print a table that converts US Dollars into Icelandic Krona.– **6 points**

First, display the titles of “US Dollars”, and “Icelandic Krona”. Then the program should display dollars from 15 to 200 in one-dollar increments and the corresponding krona equivalents. One dollar = 135.84 krona.

```
cout << "US Dollars" << setfill(' ') << right << setw(20) << "Icelandic Krona" << endl;for
```

10. Write a portion of the program using a DO-WHILE loop to perform the following task. – **6 points**

Ask the user for a number between 1 – 100. If the number is not between 0 – 100 (inclusive), ask the user again. If the number is between 0 – 100, leave the loop and print the value.

```
do{ cin >> num;} while (num <
```

Chapter 6

11. In the function below you will have to provide the parameters (using call by reference or value as needed), the return value and the code so that, without changing anything in main, the output generated from main is: - **8 points**

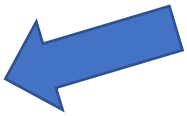
result = 4

b = 12

NOTE: function example cannot include any output (cout) statement

…. example (…. , …..)  **fill in the dots**

{ **your code goes here**



```
int example(int a, int &b){

}
```

```
int main()
 { int a = 3, b=25, result=0;
  result = example(a,b);
cout << “result= “ <<  result << endl << “b= “<< b <<endl;
return 0;
}
```

12. Do the following program (part I). - **8 points**

Write a function change that accepts an int array as the first parameter, and another int parameter for the length of that array and an int value as a third parameter. The function will store the integer value into the last element of the array. The original array SHOULD change. As an example, given the array

int x = {5, 4, 9, 42};

The following call to your function change

change(x, 4, 14);

should change the value of the last element of the

array to 14. Your new array should look like:

{5, 4, 9, 14}

```
void change(int &x[], int len, int val){
```

13. Write the prototype for the above function change(part II). – **4 points**

```
void change(int &x[], int len, int val);
```

14. Write the code for the MAIN function and CALCULATE function. – 12 points

In the main function: store your name in a variable, and print it. Ask the user for 2 integers. Call the CALCULATE function, pass 2 numbers, and print the returned value from the CALCULATE function.

In the CALCULATE function: if first number is even, then calculate and return the sum of the 2 numbers. If the first number is odd, then calculate and return multiplication of the 2 numbers, unless their product is equal to 0. In that case, calculate the sum and return the sum.

```
int calculate(int x, int y){ if ((x % 2
```

Chapter 7

15. Answer the following 4 parts – **10 points**

string my_string = “This winter, we will fly to Hawaii, then to Iceland.”;

a) What include file is required to process string and make use of various string functions.

#include <string>

b) Write a code that will print the length (size) of the variable my_string.

cout << my_string.length() << endl;

c) Write a code to print, using substr function, following:

“We will go to country!” ?????

cout << my_string.substr(x,y) << endl;

d) What is the output, as a result, of following 2 statements?

my_string.erase(21, my_string.size()-21);

cout << my_string << endl; "This winter, we will "

e) What is the output, as a result, of the following statements?

my_string.insert(21, "enjoy the Caribbean cruise!");

cout << my_string << endl;

"This winter, we will enjoy the Caribbean cruise!fly to Hawaii, then to Iceland."

Chapter 8

16. Given the array int my_array [ ] = {1,2,3,4,5}, write a loop that replaces every element that is **not** a multiple of 2, with the value 1, starting with the first element. Then print the array. – **7 points**

```
for (int i = 0; i < 5; i++) { if (m
```

17. Write a code that will produce output shown in the box when going through the array. HINT: make use of the remainder operator (%) – **7 points**

```
int list[] = {15, 18, 3, 65, 11, 32, 60, 55, 9};
```

```
1, 0, 1, 1, 1, 0, 0, 1, 1
```

```
for (int i = 0; i < 9; i++) {
```

18. Consider following declarations: - 10 points

```
int beta[3][3];
int i, j;
```

Write down exactly what the all the elements of the beta array will look like as a result of the following code:

```
for (i=0; i<3; i++) {
   for (j=0; j<3; j++)
        beta[i][j] = i * j;
}
```

beta[3][3] = {{0, 0, 0}, {0, 1, 2}, {0, 2, 4}}