**Part I.**

1. Show the order of evaluation of the operators in each of the following C++ statements, and write the value of x after each statement is performed.

* 1. x = 7 + 3 \* 6 / 2 - 1;

15

* 1. x = ( 3 \*9 \* ( 3 + ( 9 + 3 / ( 3 ) ) ) );

351

1. What will the following program print on screen?

#include <iostream> using namespace std;

int main() { int a, x=23; a = x % 2;

cout << x << endl << a <<endl; return 0;

}

23

1

1. What will the following program code display?

int integer1=19, integer2=2; double doubleVal;

doubleVal = integer1/integer2; cout << doubleVal << endl;

doubleVal = static\_cast<double>(integer1) / integer2;

cout << doubleValue << end;

doubleVal = static\_cast<double>(integer1 / integer2);

cout << doubleValue << end;

9

9.5

9

1. Rewrite the following code, replacing the do-while loop with a while loop. When you do this you will no longer need an if statement.

int number;

cout << “Enter an event number: ”; do {

cin >> number; if (number % 2 != 0)

cout << “Number must be even. Reenter number: ”;

} while (number %2 != 0);

cout << "Enter an even number: ";

cin >> number;

while (number % 2 != 0) {

cout << "Number must be even. Reenter number : ";

cin >> number;

}

1. Look at the following array definition.

int values[10];

* 1. How many elements does the array have?

10

* 1. What is the subscript of the first element in the array?

0

* 1. What is the subscript of the last element in the array?

9

* 1. If an int uses four bytes of memory, how many memory does the array use?

40

1. Given the variable initializations

int a[5] = {0, 10, 20, 30, 40}; int k = 3; int \*p = a + 1;

Determine the output from each of the following statements:

* 1. cout << a[k];

30

* 1. cout << \*(a + k);

30

* 1. cout << \*a;

0

* 1. cout << a[\*a];

0

* 1. cout << a[\*a + 2];

20

* 1. cout << \*p;

10

* 1. cout << p[0];

10

* 1. cout << p[1];

20

1. Explain the difference between a local variable and a data member.

A local variable resides within a function while a data member resides in a class.

For example:

class Student {

String name; // data member

function toString(){

String result; // local variable

}

}

1. What’s a default constructor?   
     
   A default constructor is a constructor that contains no parameters.   
     
   How are an object’s data members initialized if a class has only a default constructor defined by the compiler?

Objects default constructors are called.

Primitive types are not initialized.

References must be initialized else the compiler will complain.

1. Describe “namespaces” in C++ . Explain how a program could use class string without inserting a using directive.

A namespace is a library that holds classes that can be used in the file that imports it. A program could use the string class without inserting a using directive like so std::string str = "My string!";

1. Explain why a class might provide a *set* function and a *get* function for a data member.

In the case that a class has private data members, that class may provide a set function and a get function fso that the data member can be retrieved and changed outside the class.