

Question #	Points	
1	25	When passing a C-style string as a parameter to a function - is the parameter passed by reference or default?
2	25	When allocating the size of a C-style string, assume you want to store the string, "Hello, World!". What is the minimum size of the string you would need to allocate. Show how you would declare the string.
3	100	Write a C++ program that will prompt the user for the size of a list of integers. Your program will 1. dynamically allocate an array of that size and allow the user to enter the values. 2. Your program will then go through the list and copy all even numbers to another dynamically allocated array. The functionality of 1 and 2 need to be accomplished by separate functions.
4	100	Redo question number 3 with these changes. Instead of dynamically allocating an array to store the data, your program will use an STL array. Even numbers will also be copied to an STL array. The input of the data and copying of even numbers will require the program to start at the beginning of the array and walk through the values to the end. This must be done using iterators.
5	25	What is the difference between composition and inheritance?
6	50	What is polymorphism? Be sure to include what role virtual functions play in this and the difference between a virtual and pure virtual function. Be sure to include the definition of an abstract base class.
7	25	Assume that class B is derived publicly from class A which is abstract. The member functions that are private in class A will be private/protected/public/not directly accessible in class B.
8	50	Assume that you have a class that has an integer pointer as a private member. One of the member functions will dynamically allocate memory and assign the address to that member. Assume that an object of that class type is instantiated and the function called to allocate memory. When the object reaches the end of its scope - will the memory that has been allocated be released automatically? If not, how would you create a mechanism to accomplish this. Be specific.
9	25	What purpose does a copy constructor serve? Under what circumstances is it required?
10	75	Create a class that will store a list of names. Your class needs to include a function that will return the name that appears first alphabetically, and another function that should return the name that appears last alphabetically. You also need to include a function that will sort the list alphabetically. The class does not need to be case insensitive. The three functions should make use of the <i>algorithms</i> discussed in this class.