Comprehensive Question for

CSC 283 - Programming C++

What is Object Oriented Programming Language

Object-oriented programming is a programming paradigm based on the concept of "objects", which may contain data, in the form of fields, often known as attributes; and code, in the form of procedures, often known as methods.

What is Class?

A class is a construct that enables you to create your own custom types by grouping together variables of other types, methods and events. A class is like a blueprint. It defines the data and behavior of a type.

What is a member function?

A member function of a class is a function that has its definition or its prototype within the class definition similar to any other variable.

What is an object?

An object is a specific instance of a class; it contains real values instead of variables.

What is Constructor & Destructor?

Constructor is a special member function of class and it is used to initialize the objects of its class. It is treated as a special member function because its name is the same as the class name. **Destructor** on the other hand is used to destroy the class object.

What is encapsulation?

Grouping related data and functions together as objects and defining an interface to those objects

What is inheritance?

Allowing code to be reused between related types

What is polymorphism?

Allowing a value to be one of several types, and determining at runtime which functions to call on it based on its type

Basic Structure:

```
#include <iostream>
int main()
{
  cout << "Hello, world!\n";
  return 0;
 }
```

What is the access modifier?

The access restriction to the class members is specified by the labeled **public, private,** and **protected** sections within the class body. The keywords public, private, and protected are called access specifiers.

A **public** member is accessible from anywhere outside the class but within a program.

A **private** member variable or function cannot be accessed, or even viewed from outside the class. Only the class and friend functions can access private members.

A **protected** member variable or function is very similar to a private member but it provided one additional benefit that they can be accessed in child classes which are called derived classes.

What is Function Overloading?

Function overloading is a programming concept that allows programmers to define two or more functions with the same name and in the same scope. Each function has a unique signature which is derived from: function/procedure name, number of arguments.

What is Multiple Inheritance?

Multiple inheritance is a feature of some object-oriented computer programming languages in which an object or class can inherit characteristics and features from more than one parent object or parent class.

What is Exception Handling?

Exceptions provide a way to transfer control from one part of a program to another. C++ exception handling is built upon three keywords: try, catch, and throw.

- throw − A program throws an exception when a problem shows up. This is done using a throw keyword.
- catch − A program catches an exception with an exception handler at the place in a program where you want to handle the problem. The catch keyword indicates the catching of an exception.
- try − A try block identifies a block of code for which particular exceptions will be activated. It's followed by one or more catch blocks.

Pass by value and pass by reference