

## Unit-II

### Two Mark Questions

**1. What is a virtual base class?**

When a class is declared as virtual c++ takes care to see that only copy of that class is inherited, regardless of how many inheritance paths exist between the virtual base class and a derived class.

**2. What is the difference between base class and derived class?**

The biggest difference between the base class and the derived class is that the derived class contains the data members of both the base and its own data members. The other difference is based on the visibility modes of the data members.

**3. What are the rules governing the declaration of a class of multiple inheritance?**

- More than one class name should be specified after the : symbol.
- Visibility modes must be taken care of.

If several inheritance paths are employed for a single derived class the base class must be appropriately declared

**4. Mention the types of inheritance.**

1. Single inheritance.
2. Multiple inheritance.
3. Hierarchical inheritance.
4. Multilevel inheritance.
5. Hybrid inheritance.

**5. Define dynamic binding. APRIL AMY 2010**

Dynamic binding means that the code associated with a given procedure call is not known until the time of the call at run-time.

**6. What do u mean by pure virtual functions?**

A pure virtual function is a function declared in a base class that has no definition relative to the base class. In such cases, the compiler requires each derived class to either define the function or redeclare it as a pure virtual function. A class containing pure virtual functions cannot be used to declare any objects of its own.

**7. What is the need to declare base classes as virtual? (Nov/Dec 2013)**

When two or more objects are derived from a common base class, we can prevent multiple copies of the base class being present in an object derived from those objects by declaring the base class as virtual when it is being inherited. Such a base class is known as virtual base class.

**8. What is the use of virtual functions in C++? (Nov/Dec 2013)**

- Virtual Functions are used to support " Run time Polymorphism".

- You can make a function virtual by preceding its declaration within the class by keyword 'virtual'.
- When a Base Class has a virtual member function, any class that inherits from the Base Class can redefine the function with exactly the same prototype i.e. only functionality can be redefined, not the interface of the function.

#### **9. Define multiple inheritance? (Nov/dec 2012)**

If a derived class is derived from more than one base class, then it is called multiple inheritance.

#### **10. Define Polymorphism?(Nov/dec 2012)**

Polymorphism is the feature that allows one interface to be used for a general class of actions.(ie) “one interface multiple methods”.

This means that it is possible to design a generic interface to a group of related activities. This helps reduce complexity by allowing the same interface to be used to specify a general class of action.

#### **11. What is an virtual function? (September 2011, Nov/Dec 2010)**

A member function whose definition can be changed during run time is called virtual function. The class which contains virtual function is called polymorphic class and it should be a base class. Different versions for the virtual function should be present in different derived classes with same name as virtual function name.

#### **12. What is meant by inheritance? (Nov/Dec 2010)**

Inheritance is the process by which objects of one class acquire the properties of another class. It supports the concept of hierarchical classification. It provides the idea of reusability. We can add additional features to an existing class without modifying it by deriving a new class from it.

#### **13. What are the advantages of inheritance? (Nov/Dec 2010)**

- New classes can be derived by the user from the existing classes without any modification.
- It saves time and money.
- It reduces program coding time.
- It increases the reliability of the program.

#### **14. Write short notes on virtual base class.(Apr 2010)**

A base class that is qualified as virtual in the inheritance definition. In case of multiple inheritance, if the base class is not virtual the derived class will inherit more than one copy of members of the base class. For a virtual base class only one copy of members will be inherited regardless of number of inheritance paths between base class and derived class.

Eg: Processing of students' results. Assume that class sports derive the roll number from class student. Class test is derived from class Student. Class result is derived from class Test and sports.

As a virtual base class As a virtual base class

**15. What is meant by Abstract base class? (Nov/Dec 2009)**

A class that serves only as a base class from which derived classes are derived. No objects of an abstract base class are created. A base class that contains pure virtual function is an abstract base class.

**16. Define abstract class? (Nov/Dec 2009)**

A class is said to be an abstract class if it satisfies the following conditions:

- It should act as a base class
- It should not be used to create any objects

**16 Mark Questions**

1. Explain in detail about virtual function and polymorphism with example.
2. Briefly explain this pointer with example program.
3. Explain the concept of virtual destructors.
4. What is inheritance? Explain with examples the different types of inheritance in C++
5. Write about casting class pointers and member function.
6. Write short notes on constructors and destructors in derived classes.
7. Briefly explain about abstract base classes and concrete classes.
8. Explain protected data with private and public inheritance.
9. Explain the concept of overriding. How it differs from overloading?
10. Write short notes on dynamic binding and protected members.