

**M.K Institute of Computer Studies, Bharuch**  
**S.Y.BCA – 2 ( Semester III )**  
**SUB :- OOPS ( Inheritance and Virtual Function )**

<b>Short Questions ( 1 Mark )</b>		
01.	What is an abstract class ?	
02.	When do we make a virtual function “pure” ? How it is declared ?	
03.	What is inheritance ? List different types of inheritance.	
04.	What is virtual base class ?	
05.	What does this pointer point to ?	
06.	What is protected modifier in class ?	
07.	What do you mean by method overriding ?	
08.	Is it possible to write virtual function as static function ?	
09.	What is the advantage of declaring data as protected instead of data as public in class ?	
<b>Long Questions</b>		
01.	What does inheritance mean ? When do we use protected visibility specifier to a class member ?	03
	<b>OR</b>	
	How do you inherit private member into derive class ? Explain with example .	05
02.	When do we need virtual functions ? Write down the rules for virtual functions.	03
	<b>OR</b>	
	What is pure virtual function ? Why we need pure virtual function ? Write down rules for pure virtual function.	05
	<b>OR</b>	
	When do we make a virtual function “pure” ? Write down syntax for pure virtual function.	05
	<b>OR</b>	
	State the rules to be observed when creating virtual function.	05
03.	What is this pointer ? What are the applications of it ?	03
	<b>OR</b>	
	What is this pointer ? If there are four objects of one class then how many this pointer available for those objects. Why ?	04
04.	What do you mean by constructor in derived classes ? If a constructor is present in derived and base class then which constructor function gets executed. Explain with example.	03
05.	If a class D is derived from two base classes B1 and B2 , then write these classes each containing a Zero argument constructor. Ensure that while build an object of type D firstly the constructor of B2 should get called followed by that of B1. Also provide a destructor in each class. In what order would these destructor get called ?	04
06.	What is single inheritance ? Write a program to define class A with two data members. Define another class D which inherits the data member of class A. Take appropriate member functions and display the multiplication of two data members.	03
07.	In what order are the class constructor and destructor called when derived class object is created ?	03
08.	How is polymorphism achieved at run time and compile time ?	03
09.	What is ambiguity in hybrid inheritance ? How ambiguity remove from compile time ? Explain with example.	05
	<b>OR</b>	
	What is inheritance ? When ambiguity occurs in hybrid inheritance. What are solutions to avoid ambiguity.	05
10.	How do the properties of the two following two derived classes differ ? (a) class D1 : private B, public C { } ; (b) class D2 : protected B, private C { } ;	04
11.	What are the different forms of inheritance ? Describe the hybrid inheritance. Write the syntax of hybrid inheritance with example.	05
12.	What is containership ? How does it differ from Inheritance ?	05
13.	What is inheritance ? Differentiates multiple and multilevel inheritance with example.	03
14.	What is visibility modifier ? List out them and differentiates with proper example.	03

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### Programs

01.	Create a class called “vehicle” which contains data member’s Registration number and Fuel-type. Make getdata() function to input data value. Create class “Two-wheeler” from “vehicle” which contains data member’s distance and mileage. Make getdata() function to input data. Use overriding techniques for getdata() function and display the information with fuel used.	05
02.	Create a base class called shape. Use this class to store two double type values that could be used to compute the area of figures. Derive two specific classes called triangle and rectangle from the base shape. Add to the base class a member function getdata() to initialize base class data members and another member function disp_area() to compute and display the area of figures. Make disp_area() as a virtual function and redefine this function in the derived classes to suit their requirements. Using these three classes, design a program that will accept dimension of a triangle or rectangle interactively, and display the area Area of rectangle = $x * y$ Area of triangle = $\frac{1}{2} * x * y$	05
03.	Create a SHAPE class which has no_of_sides data member. Derive two classes CIRCLE and RECTANGLE from SHAPE class. CIRCLE class has one data member radius. RECTANGLE class has two data members length and width. Now using technique of virtual function get data for both class and display data for both class.	06