

- Instructions :** (1) All Questions are Compulsory.
(2) Answer each next main Question on a new page
(3) Illustrate your answers with neat sketches wherever necessary.
(4) Figures to the right indicate full marks.
(5) Assume suitable data, if necessary.
(6) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

1. (a) Attempt any **SIX** of the following : [12]
- (i) Explain Extraction Operator (>>).
 - (ii) Explain History and Features of C++.
 - (iii) Explain the term 'polymorphism'.
 - (iv) Explain Passing Object as Argument to Member Functions.
 - (v) List any four characteristics of Constructors.
 - (vi) Explain Destructors with example.
 - (vii) What is abstract class?
 - (viii) Differentiate Late binding and Early binding.
- (b) Attempt any **TWO** of the following : [8]
- (i) List any four benefits of OOP.
 - (ii) Explain Overloading Unary Operators.
 - (iii) Write a program to reverse an array using pointer.
2. Attempt any **FOUR** of the following : [16]
- (a) List Characteristics / Features of Object Oriented Programming.
 - (b) Explain any two concepts of OOP.
 - (c) List Characteristics of Procedural oriented programming.
 - (d) Explain Inline Functions with example.
 - (e) Programs Based on Passing Object as Function Argument.
 - (f) Write a program to declare a class student containing data members roll_no and percentage. Accept this data for 2 objects and display the roll_no of the student having higher percentage.
3. Attempt any **FOUR** of the following : [16]
- (a) Explain the concept of Multiple constructors in a class (Overloaded Constructors).
 - (b) Explain the concept of Constructor with Default Parameters.
 - (c) Explain copy constructor with example.
 - (d) Explain Operator Overloading with example.
 - (e) Explain friend function with example.
 - (f) Programs on Operator overloading and String.

4. Attempt any **FOUR** of the following : [16]
- (a) Explain the concept of Inheritance.
 - (b) Explain types of Inheritance.
 - (c) Declare a base class 'furniture' having data members length, width and height. From that Derive a class 'bookshelf' having data members as no of shelves.
 - (d) What is abstract class?
 - (e) Explain Virtual Base Class. Describe with suitable diagram.
 - (f) Write a program to implement the following figure also identify the type of inheritance.
5. Attempt any **FOUR** of the following : [16]
- (a) What is pointer? Give any example.
 - (b) Write a program to search an element in the array using pointer.
 - (c) Explain Pointer to Object.
 - (d) Explain this pointer.
 - (e) Explain Derived Class.
 - (f) Write program to concat(join) two strings using pointer to string.
6. Attempt any **FOUR** of the following : [16]
- (a) Explain Types of polymorphism.
 - (b) What is Virtual function? Why do we need virtual function?
 - (c) List Rule for Declaring Virtual Functions.
 - (d) Differentiate Late binding and Early binding.
 - (e) List the Rules for Overloading Operators.
 - (f) Write a program to create a class worker having data members as name and skill ('plumber', 'fitter' etc). Accept this details for 5 workers and display the names of workers having skill as plumber.

