

(3 Hours)

[Total Marks: 80]

N.B.: (1) Question No. 1 is **Compulsory**.(2) Attempt any **three** questions from the remaining **five** questions.(3) Answers to **sub-questions** should be **grouped** and written **together**.

- Q.1 (a) What is Dynamic Binding? Explain use of virtual functions to implement Dynamic Binding with an example. 10
- (b) What are different file opening modes? Write a C++ Program to copy contents of one text file into another. 10
- Q.2 (a) What are different types of Type conversions? Write a program to convert Feet to Inches using object to object conversion overloading. 10
- (b) Create a class called Date that includes three pieces of information as instance variables—a month (type int), a day (type int) and a year (type int). Your class should have a constructor that initializes the three instance variables and assumes that the values provided are correct. Provide a set and a get method for each instance variable. Provide a method displayDate that displays the month, day and year separated by forward slashes (/). Write a test application named DateTest that demonstrates classDate's capabilities. 10
- Q.3 (a) What is Inheritance? Are Constructors Inherited? Explain what role default and parameterized constructors play in inheritance with a program. 10
- (b) Explain the concept of Function Templates. Write a template function that returns the average of all the elements of an array. The arguments to the function should be the array name and the size of the array (type int). In main (), exercise the function with arrays of type int, long and double 10
- Q.4 (a) What is Exception handling? Write a program to illustrate exception handling mechanism of C++. 10
- (b) Explain the concept of 10
- i) New and delete
- ii) Pass By Value and Pass By Reference
- Q.5 (a) What is Header Files? Explain the steps to create your own header file with an example. 10
- (b) What are static Data Members and methods? Illustrate use of static data members and methods with a suitable program. 10
- Q.6 Write short notes on any **four** :-- 20
- (a) Bitwise operators in C++
- (b) Encapsulation and Polymorphism
- (c) Execution process of C++ Program
- (d) Friend Functions.
- (e) Pointer to Constant and Constant Pointer
