

(Time: 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 constructor and destructor? Write a program to implement concept of constructor overloading. 10
(b) What is template? Write a program to create function template swaps() that interchange value of two arguments sent to it. Write a main() program to exercise the function with several data types like int, float, and char. 10
- Q.2 (a) Explain basic concepts of object oriented programming. What advantages OOP offers to the programmer and the user? 10
(b) Explain the concept of 10
i) explicit and mutable keyword
ii) constant pointer and pointer to a constant
- Q.3 (a) What is dynamic binding? How it is implemented explain with suitable example. 10
(b) What are different file opening modes? Write a program to read and write an object to a file. 10
- Q.4 (a) What is operator overloading? Write a program to Overload pre and post increment operators. 10
(b) Explain exception handling mechanism in C++ with suitable example. 10
- Q.5 (a) What is inheritance? Explain the use of protected modifier in inheritance with suitable example. 10
(b) Explain the use of static data members and methods with a suitable example. 10
- Q.6 Write short notes on any **four** :- 20
(a) STL
(b) Dynamic memory allocation
(c) Bitwise operators in C++
(d) Inline function
(e) Static and dynamic cast