

(Time: $2\frac{1}{2}$ hours)

[Marks: 75]

Please check whether you have got the right question paper.

- N. B.: (1) **All** questions are **compulsory**.
 (2) Make **suitable assumptions** wherever necessary and **state the assumptions** made.
 (3) Answers to the **same question** must be **written together**.
 (4) Numbers to the **right** indicate **marks**.
 (5) Draw **neat labeled diagrams** wherever **necessary**.
 (6) Use of **Non-programmable** calculator is **allowed**.

1. Attempt any three of the following:**15**

- What is procedure oriented Programming? What are its characteristics?
- Differentiate between Object Oriented and Procedure Oriented Programming paradigms.
- Discuss the need and advantages of Object Oriented Programming.
- Discuss various applications of Object Oriented Programming.
- What do you mean by Dynamic and static binding.
- Write a short notes on (i) Object (ii) Class

2. Attempt any three of the following:**15**

- What is a class? Illustrate the use of class with a simple c++ program.
- What are inline functions? How an outside function can be made inline?
- What is a constructor? Explain its characteristics. List various types of constructors?
- What are friend functions? What are their characteristics? Write a small program to illustrate the use of a friend function.
- Explain the use of parameterized constructors with a programming example.
- What do you understand from nesting of member functions? Explain with suitable programming example.

3. Attempt any three of the following:**15**

- What is function overloading? Explain with suitable example.
- What is operator overloading? List the operators which can be overloaded and which cannot be overloaded.
- Write a c++ program to overload unary minus operator.
- What are virtual functions? Explain.
- Define the following
 (i) Abstract Class (ii) Pure Virtual Function
- What is a **this** pointer? Write a program to illustrate its use.

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4. Attempt any three of the following:**15**

- What do you understand from the concept of inheritance? Explain its various types.
- Explain the use of various visibility modes used in inheritance.
- Discuss the role of constructors in derived classes in detail.
- What is an exception? What are advantages of exception handling mechanism in a program?
- Explain the concept of throw and catch with suitable example.
- Write a c++ program to illustrate multilevel inheritance.

5. Attempt any three of the following:**15**

- What are class templates? Explain their use. How a class template can be declared?
- Explain function template with a programming example.
- Write a c++ program to implement bubble sort using function template.
- Explain the working of files in c++.
- Explain various methods to detect end of file in a c++ program.
- Explain the following
 - seekg()
 - seekp()