

(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()
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