

Q. P. Code: 08243

(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 Object Oriented Programming? State any three advantages and applications.
- Explain concept of encapsulation and abstraction.
- Explain the relationship between object and class.
- What is Polymorphism? Give example for the same.
- What is inheritance? State its types.
- Give comparison between Object oriented and Procedure oriented programming languages.

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

- What is constructor? State the rules for constructor.
- Explain the concept of passing object as an argument.
- Write a program to implement the concept of constructor and destructor.
- Write a program to design a class MyCalculator with add(), mul() and sub() methods.
- Explain the concept of friend function with suitable example.
- Write a program to implement the concept of pointer to object.

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

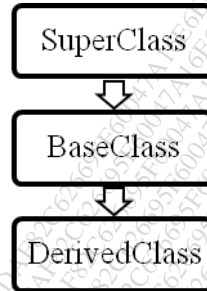
- What is overloading? Write a program to demonstrate the concept of function overloading.
- What is operator overloading? State the rules for operator overloading.
- List the operators that cannot be overloaded. Write a program to add two complex numbers by overloading binary operator.
- What is static member and function? State its characteristics.
- What is method overriding? Explain the use of virtual function.
- What is abstract class? State the properties of abstract class.

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4. Attempt any three of the following:

15

- What are access specifiers? Explain the use of each.
- Write a program to implement the concept of single level inheritance.
- Write a C++ program to handle various exceptions.
- Explain the use of throw and catch keywords with proper syntax.
- Explain the difference between deriving a class in public mode and private mode.
- Write a program to implement the inheritance for the given hierarchy.

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

15

- What is generic programming? Explain the use of generic programming.
- Explain with example the use of class templates.
- Write a program to implement the concept of function template.
- What are file operations? Explain different modes of files.
- Write a program to read data from user and write to the file.
- Write a program to copy the content from *file1* to *file2*.