

(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

- Write down advantages and disadvantages of procedure oriented language.
- Explain object oriented development.
- Write down benefits of using object oriented programming.
- Write a short note on Data abstraction and data encapsulation.
- Explain dynamic binding with example. Give proper example.
- What is inheritance? Explain with example the concept of multiple inheritances.

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

15

- What is friend function? Write a friend function to display mark sheet of the F. Y. B. Sc. IT student.
- What is class? Explain with example how objects are passed as argument to member function and objects are returned from member function.
- Write a C++ program to design a class - **course**. For reading and displaying the course information, the `getInfo()` and `displayInfo()` methods will be used respectively. The `getInfo()` will be private method. Write down C++ program to implement the class.
- What is inline function? Explain with example.
- What is use of **constructor**? Explain with example parameterized constructor.
- Write a C++ program to demonstrate the use of constructor and destructor.

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

15

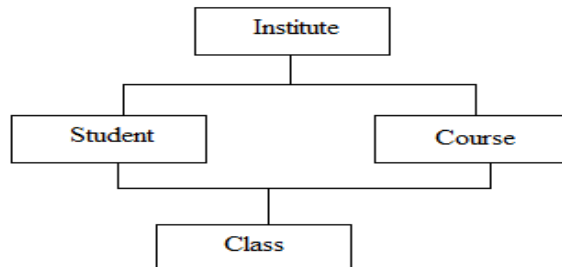
- What is function overloading? Explain with example.
- What is operator overloading? Write down the rules for operator overloading.
- How binary operators are overloaded? Write a C++ program to overload binary operator +.
- What is method overriding? Explain with example.
- Explain with example abstract class.
- Explain virtual destructor. Give suitable example.

[TURN OVER]

4. Attempt any three of the following:

15

- Can private members of a base class are inheritable? Justify.
- Explain with example multilevel inheritance.
- Explain how a base class is derived in public and private mode.
- Write a C++ program to implement following hierarchy.



- What is exception? Explain exceptions handling mechanism?
- What happen when raised exception is not caught by catch block? Explain with suitable example.

5. Attempt any three of the following:

15

- Explain with example how function templates are used.
- Explain how compiler calls to a class and function template.
- Write a C++ program which defines and uses student class template.
- What is file? Write down the steps for manipulating files in C++.
- Explain the hierarchy of file stream class.
- What are different methods of opening a file? Write a program to open file and enter student details into the file using any method.