

Object Oriented Programming using C++ (313304)

MSBTE Diploma · K-Scheme · Model Question Paper — Set A

Time: 3 Hours**Max. Marks: 70****Instructions:**

1. All questions are compulsory.
2. Answer each next main question on a new page.
3. Illustrate your answers with neat sketches wherever necessary.
4. Figures to the right indicate full marks.
5. Assume suitable data, if necessary.
6. Mobile phone, pager and any other electronic communication devices are not permissible in the examination hall.

Q.1 Attempt any FIVE of the following:**10**

- a) Define the following: i) Class ii) Object
- b) State any four features of object oriented programming.
- c) State any two characteristics of constructor.
- d) Define pure virtual function. Give its syntax.
- e) List the types of inheritance.
- f) State any two rules for operator overloading.
- g) What is an inline function? Give its syntax.

Q.2 Attempt any THREE of the following:**12**

- a) Explain friend function with suitable example.
- b) Write a C++ program to overload the function *area()* to find the area of a circle and the area of a rectangle.
- c) Explain virtual base class with suitable example.
- d) Differentiate between POP and OOP. (Any four points)

Q.3 Attempt any THREE of the following:**12**

- a) Explain different file opening modes with suitable example.
- b) Describe constructor overloading with suitable example.
- c) Explain scope resolution operator and memory management operators in C++ with suitable example.
- d) Explain virtual function with suitable example.

Q.4 Attempt any THREE of the following:**12**

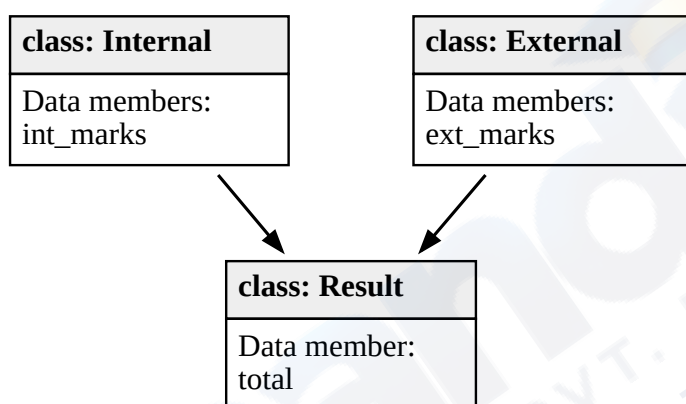
- a) Explain multilevel inheritance with diagram and suitable example.

- b) Differentiate between compile time and run time polymorphism. (Any four points)
- c) Explain 'this' pointer with suitable example.
- d) Explain static data member and static member function with example.
- e) Draw the hierarchy of stream classes used for file operations and state the use of ifstream, ofstream and fstream.

Q.5 Attempt any TWO of the following:

12

- a) Write a C++ program to declare a class 'student' having data members roll_no, name and percentage. Accept this data for 5 students and display the names of students having percentage greater than 75.
- b) Write a C++ program to implement the inheritance shown in the figure below. Accept and display data for one object of class Result.



- c) Write a C++ program to overload the unary minus (−) operator to negate the values of the data members of a class.

Q.6 Attempt any TWO of the following:

12

- a) Write a C++ program to copy the contents of file 'source.txt' into file 'target.txt' and display the number of characters copied.
- b) Write a C++ program to show how a parameterized constructor of the base class is called from the constructor of the derived class. Create one object of the derived class.
- c) Write a C++ program to declare a class 'laptop' with data members brand, model and price. Accept and display data for one object using pointer to object.

Note: This is a **model question paper prepared by Ananda Technologies** only for practice and exam preparation, based on the pattern of previous MSBTE question papers and the K-scheme syllabus. It is **not an official MSBTE paper**, and it does **not** mean that these questions will come in the exam. Answers follow standard textbook points; marks shown are indicative. Free for students — anandatechnologies.in