

Object Oriented Programming using C++ (313304)

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

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) Write the syntax of class declaration in C++. Define object.
- b) State any four applications of OOP.
- c) Define constructor. List its types.
- d) State any two visibility modes with their meaning.
- e) Define abstract class with example.
- f) State the need of polymorphism. List its types.
- g) What is a default argument? Give one example.

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

- a) Differentiate between structure and class in C++. (Any four points)
- b) Write a C++ program to write the names of three subjects into a file 'subject.txt' and then read and display them from the same file.
- c) Explain pointer to derived class with suitable example.
- d) Write a C++ program to overload the function *volume()* to find the volume of a cube, a cylinder and a rectangular box.

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

- a) Explain parameterized constructor. Write a program using class 'time' with data members hours, minutes and seconds initialised by a parameterized constructor.
- b) Explain run time polymorphism with suitable example.
- c) Write a C++ program to find the greater of two numbers, where the numbers belong to two different classes, using a friend function.
- d) Explain hierarchical inheritance with diagram and suitable example.

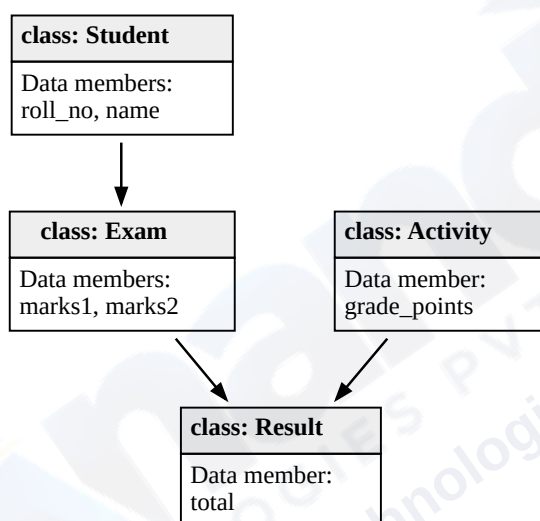
Q.4 Attempt any THREE of the following:**12**

- Explain how a file can be opened (i) using constructor and (ii) using open() function, with example.
- Differentiate between constructor and destructor. (Any four points)
- What is a virtual base class? Why is it needed? Explain with diagram.
- State any four rules for virtual functions.
- Explain the functions get(), put(), getline() and write() used for file input/output.

Q.5 Attempt any TWO of the following:

12

- Write a C++ program to declare a class 'employee' having data members emp_id, name and salary. Accept this data for 5 employees and display the details of employees whose salary is greater than 25000.
- Write a C++ program to implement the hierarchy shown in the figure below using suitable member functions. Accept and display data for one object of class Result.



- Write a C++ program to overload the binary '+' operator to add two complex numbers.

Q.6 Attempt any TWO of the following:

12

- Write a C++ program to count the number of lines, words and characters in a file 'notes.txt'.
- Write a C++ program to declare a class 'book' with data members title, author and price. Accept and display data for three books using pointer to object.
- Write a C++ program to show the order of execution of constructors and destructors in multilevel inheritance.

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