Object Oriented Programming using C++ (313304)

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

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 object. Write the syntax to create an object of a class.

b) List any four basic concepts of OOP.

c) Define destructor. State any two features of destructor.

d) Define friend function. State any two characteristics of friend function.

e) Describe the use of static data member.

f) Give the syntax of constructor in derived class.

g) Define multiple inheritance. Draw its diagram.

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

a) Define copy constructor and explain its use with example.

b) Describe the concept of type conversion (type casting) with suitable example.

c) Explain function overloading with suitable example.

d) Write a C++ program to declare a class ‘rectangle’ with data members length and breadth. Define the member functions outside the class to accept the data and calculate area and perimeter.

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

a) Describe the process of memory allocation for objects with suitable diagram.

b) Write a C++ program to overload the unary ‘++’ operator to increment the count of a class ‘counter’.

c) Explain single inheritance with suitable example.

d) With suitable example, explain how an object can be passed as a function argument.

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

a) Explain any four file opening modes with syntax and example.

b) Explain the concept of virtual base class with diagram and suitable program.

c) Explain pure virtual function and abstract class with suitable example.

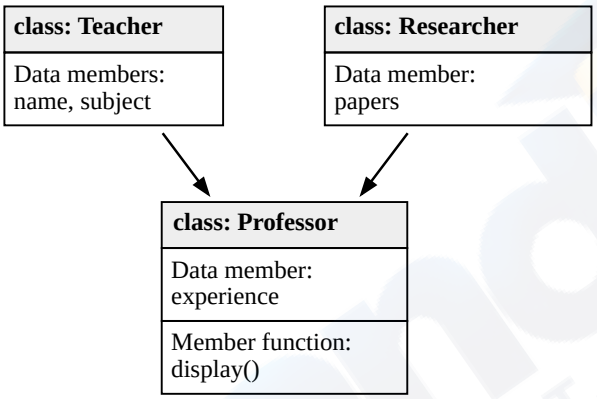
d) Write a C++ program to read and display the contents of a file using eof() to detect the end of file.

e) Explain the file pointer functions seekg(), seekp(), tellg() and tellp().

Q.5 Attempt any TWO of the following: **12**

a) Write a C++ program to declare a class ‘staff’ having data members name, department and salary. Accept this data for 6 staff members and display the names of staff working in ‘IT’ department.

b) Write a C++ program to implement the multiple inheritance shown in the figure below. Accept and display data for one object of class Professor.



c) Write a C++ program to show the use of multiple constructors in the base class and a single constructor in the derived class. Create one object of the derived class.

Q.6 Attempt any TWO of the following: **12**

a) Write a C++ program to copy the contents of file ‘old.txt’ into file ‘new.txt’ by converting all lowercase letters into uppercase.

b) Write a C++ program to declare a class ‘account’ with data members acc_no, name and balance. Using pointer to object, accept the data, deposit an amount and display the updated balance.

c) Write a C++ program to show run time polymorphism using a virtual function display() in base class ‘employee’ and derived classes ‘manager’ and ‘clerk’.

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