



Pre-Semester Examination 2013 (2070)

B.Sc-CSIT/Third Semester/CSC 202: Object Oriented Programming Languages

Full Marks: 60

Time: 3 hrs

Candidates are required to give their answers in their own words as far as practicable.

Section A

Attempt any Two questions

[2x10=20]

1. What are the advantages of Object Oriented Programming over the procedural programming language? How data encapsulation and information data hiding is achieved using OOP in C++? Explain with example.
2. What are the different types of inheritance? Write a program as the specification given below:
 - Create a class Person with attributes Name, Age, Address and with necessary member functions and constructors
 - Create a class Employee which inherits Person and also contains its own attributes eid and salary and also contains necessary member functions and constructors.
 - Create a class Company which comprise all the above classes and also contains its own attributes cid, number of employees and location and also contains necessary member functions and constructors.
 - Create an object of Company and display details of the company.
3. What is friend function? Why friend functions are required? Make a class alpha with private member integer variables a and b, and class beta with private member integer variables x and y. Now write a program to show how to use friend function to show sum of members of both classes alpha and beta.

Section B

Attempt any Eight Questions

[8x5=40]

4. What do you mean by inline function? In which case is it useful and how? Give example.
5. Differentiate between constructor and destructors. Write a program to demonstrate constructor overloading.
6. What is data conversion? Write a program to convert basic to object type.
7. What do you mean by static members? Explain the use of static for data member in OOP.
8. Will there be an ambiguity if both base and derived classes will have a functions of same name? Support your answer with suitable reasons. Create classes Book having data member name of author (string) price (float) and class Stock having data number of books (int) and category (string) create another class library which derives from both the classes Book and stock. All the classes should have functions having same name. Now write a program to illustrate this scenario.
9. Explain the difference between containership and inheritance? Write a complete program in C++ to illustrate the containership.
10. Write down the importance of operator overloading in C++. Write a complete program to concatenate two strings using '+' binary operator.
11. What is function template? Explain it with a program.
12. What is polymorphism? Explain early binding and late binding with example.
13. What are the steps of exception handling? Write a program to throw an exception from a function while invoking it.



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Section A

Attempt any Two questions

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1. What do you mean by object-orientation? What are the features of OOP? Explain the features of OOP with examples.
2. Create a class **Person** that stores the *name*, and *age*. From this class derive two classes: **Student** which adds *student's registration no* and **Teacher** which adds *post* of the teacher. Each of these classes should have a *getdata()* function to get its data from the user and a *putdata()* function to display the data. Write a *main()* program to test the **Student** and **Teacher** classes by creating instance of them, asking the user to fill the data with *getdata()* and then displaying the data with the *putdata()*.
3. What is type conversion? Explain the different methods of type conversion? Define two classes Polar and Rectangle to represent points in the polar and rectangular systems. Use conversion routines to convert from one system to another.

Section B

Attempt any Eight Questions

[8x5=40]

4. What are the types of constructors? Explain the copy constructor with example.
5. Write a program that adds two objects of Time class. Time class must have hr and min as member variable.
6. What is friend function? Write a program to add private integer member variables of two classes.
7. Discuss the concept of constructor and destructor in C++. Explain with example.
8. What is this pointer? Write a program to illustrate the use of this pointer.
9. Define class template and function template? Write a program to find the square of a number using function template.
10. Explain the details about runtime type polymorphism with suitable example program.
11. What is the difference between a normal function and static member function? Explain with suitable program.
12. What is virtual function? Differentiate between pure virtual function and virtual function.
13. What is an Exception? Write a program to illustrate the exception handling in C++.
