Printed Pages : 3

CS403

(Following Paper ID and Roll No. to be filled in your Answer Book)

PAPER ID : 110403

Roll No.

B. Tech.

(SEM. IV) THEORY EXAMINATION, 2014-15

OBJECT ORIENTED PROGRAMMING WITH C++

Time : 3 Hours] [Total Marks : 100

Note : Attempt All Question. All Questions carry equal marks.

1 Attempt any four questions : 5×4=20

(a) What is object oriented methodology ? Discuss the various stages in it.

(b) Discuss the importance of data abstraction and encapsulation with real time example.

(c) What is a class template ? How does it differ from function templates ?

(d) What do you mean by aggregation ?

(e) Prepare a portion of an object diagram for a library book checkout system that shows the date a book is due and the late charges for an overdue book as derived object.

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2 Attempt any four questions : 5×4=20

(a) Discuss the concept of state generalization with suitable example.

(b) What is meant by an abstract class ? Why is it required ?

(c) In which order the constructors and destructors are executed ? Explain with example.

(d) Can a friend function be a member of a class? Yes/No. Support your answer with example.

(e) Can a class have more than one constructor ? If yes then how ?

(f) Write a C++ program for the following specification

Class : AddressBook

Data Member : Name,Address,PhoneNo.,Email, Relationship

Member Function : InsertData( ),DisplayData( ),SearchPhNo( )

3 Attempt any two questions : 10×2=20

(a) What do you mean by function overloading ? Write a program to implement, +,, operator overloading.

(b) Bring out the relationship between Base Classes and Derived Classes and also explain the working of constructors and Destructors in derived classes.

(c) Write a program in C++ to read from the file "example.text" and write into the file "system.text". Kindly use the function to open( ) and Close( ).

4 Attempt any two questions : 10×2=20

(a) Write a program in C++ to calculate the frequency of vowels of a given sentance. Also display the vowel with highest frequency.

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(b) What are virtual functions ? Base class has some virtual method and derived class has a method with the same name. If we initialize the base class pointer with derived object, calling of that virtual method will result in which method being called ?

(c) Explain the following terms, with example :

(i) Dynamic model

(ii) Nested diagram

(iii) Links

(iv) Association.

5 Attempt any two questions : 10×2=20

(a) (i) Write a program using a try block to default and throw an exception if the conditions "divide-by-zero" occurs.

(ii) Discuss briefly various exception handling options.

(b) (i) How is const used with pointers ?

(ii) Implement friend functions and friend classes. With an example. Highlight the privileges enjoyed by friends.

(c) Give a detailed description of the concepts of exception handling with specific reference to the concepts of rethrowing an exception, exception specification etc.

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