MCA DEGREE III SEMESTER EXAMINATION NOVEMBER 2013

CAS 2303/2305 OBJECT ORIENTED PROGRAMMING WITH C++
(Regular & Supplementary)

Time: 3 Hours   Maximum Marks: 50

PART A
(Answer *ALL* questions)

$(15 \times 2 = 30)$

I.   (a)   What are the elements of object oriented programming?   Explain its key components such as objects and classes with examples.

(b)   What is function overloading?   Explain how it helps in writing well thought-out programs.

(c)   What are the differences between reference variables and normal variables? Why cannot a constant value be initialized to variables of reference type?

II.   (a)   What are objects? Describe the syntax for defining objects with examples.

(b)   Write a program illustrating class declaration, definition and accessing class members.

(c)   What are copy constructors and explain their need?

III. (a)   What is 'this' pointer? What is your reaction to the statement: delete this; Write a program demonstrating the use of this pointer.

(b)   What is operator overloading? Explain the importance of operator overloading.

(c)   What are the differences between the access specifiers private and protected?

IV.   (a)   What are abstract classes? Explain the role of abstract classes while building a class hierarchy.

(b)   What are pure virtual functions?   How do they differ from normal virtual functions?

(c)   Explain how dynamic binding is achieved by the C++ compiler.

V.   (a)   What is a class template? Explain the syntax of a class template with suitable examples.

(b)   Explain the exception handling model of C++ with various constructs supported by it.

(c)   Write a short note on 'namespace'.

PART B

$(5 \times 4 = 20)$

VI.   A.   What is the difference between inline functions and normal functions? Write an interactive program with an inline function for finding the maximum value of two numbers.

OR

B.   Explain the different object oriented concepts supported by C++.

(P.T.O.)

VII.   A.   Explain the different type of constructors with suitable examples.

OR

B.   Explain the different parameter passing methods in C++ with suitable examples.

VIII.   A.   What are the different forms of inheritance supported by C++? Explain them with an example.

OR

B.   Explain unary and binary operator overloading with suitable examples.

IX.   A.   Describe different methods of realizing polymorphism in C++.

OR

B.   Justify the need for virtual functions in C++. What are the rules that need to be kept in mind in deciding virtual functions?

X.   A.   What is a function template? Write a function template for finding the largest number in a given array. The array parameter must be of generic data type.

OR

B.   List the ten rules for handling exceptions successfully.

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