(Please write your Exam Roll No.) *Exam Roll No.* 08504643

END TERM EXAMINATION

SECOND SEMESTER [MCA] MAY-JUNE-2014

Paper Code: MCA-104	*Subject: Object Oriented Programming in C++ (2010 Onwards)*
Time: 3 Hours	*Maximum Marks: 60*

Note: Attempt any five questions, including Q.no.1 which is compulsory. Select one question from each unit.

Q1 Attempt **any eight:-** **(8x2.5=20)**

(a) Explain the IS A and HAS A class relationships. How would you implement each in a class design?
(b) What are the differences between a C++ struct and C++ class?
(c) How do you know that your class needs a virtual destructor?
(d) What is the difference between new/delete and malloc/free?
(e) Is there any problem with the following: discuss char *a=NULL; char& p= *a;?
(f) Discuss dynamic binding.
(g) What do you mean by enumerated datatypes in C++? Construct an example to demonstrate it.
(h) Why should we not return a reference or an address of a local variable?
(i) Why C++ does not provide a way to leave the leading or middle arguments as default?
(j) What do you mean by 'this' pointer? Explain with sample code?
(k) A namespace definition can be continued over multiple header files. Discuss in short.

Unit-I

Q2 (a) Identify five classes from your examination hall. Provide the interface of each class with at least three data member and three member functions for each class. **(7.5)**
(b) What are the advantages of 'cout' and 'cin' over printf() and scanf()? **(2.5)**

OR

Q3 (a) Discuss the statement "the reference variables enjoys the simplicity of value variables and power of the pointer variables"? Give example. **(2.5+1=3.5)**
(b) Discuss the advantage of inline functions over the macros with example. **(2.5)**
(c) Why did people change over from structured programming to object-oriented programming? **(4)**

Unit-II

Q4 (a) What is function overloading? Explain with example. **(4)**
(b) How does a friend function help in increasing the versatility of overload operators? Support with example. **(6)**

P.T.O.

OR

Q5 Design a fraction class with numerator and denominator data members. Implement the following member functions and operator Overloading.

(a) Constructor with default argument taken as numerator =0, denominator=1.

(b) Copy constructor.

(c) <<and>>

(d) ++ (pre-increment and post-increment operator) **(1+1+4+4=10)**

Unit-III

Q6 (a) Write a program to compare two files containing same type of records. For this, declare a class having data members similar to the record fields. Overload == operator in the class to compare the records. **(6)**

(b) What is a VTABLE. Explain the dynamic binding with respect to VTABLE. **(4)**

OR

Q7 (a) How would you write the exception specification for the following type of functions? **(2+2=4)**

i. Function that throws three types of exceptions.

ii. Function that can throw any exception.

(b) Suppose there is a base class B and a derived class D derived from B. B has two public member functions b1() and b2(), whereas D has two member functions d1() and d2(). Write these classes for the following different situations:- **(6)**

i. b1() should be accessible in main(), b2() should not be.

ii. Neither b1(),nor b2() should be accessible in main().

iii. Both b1() and b2() should be accessible in main().

Taking into consideration that the functions are called using the object of class D.

Unit-IV

Q8 Describe the components of STL? Give an example of modifying and non Modifying algorithm. **(10)**

Q9 Write a program to implement a linked list as a class template. Implement the functions. Constructor, Destructor, Append, Addatbegining, Addafter, delete, display, count. **(10)**

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