(Please write your Exam Roll No.) Exam Roll No. 05714202

END TERM EXAMINATION

THIRD SEMESTER [BCA] DECEMBER-2012

Paper Code: BCA209(NEW) Subject: Object Oriented Programming Using C++

Time : 3 Hours Maximum Marks :75

Note: Attempt all questions. Internal choice is indicated. Q.no.1 is compulsory.

Q1. (a) What is the difference between base and derived class? How data members and member functions of a base class can be accessed by derived class?

(b) How garbage collection does takes place in C++? Illustrate with an example.

(c) Give code for a template and explain its functionality.

(d) Design a class from which only one object can be created. If more than one object is created then the program should terminate.

(e) Write short note on persistent objects.

(f) Differentiate between compile time binding and run-time binding.

(g) Describe the usage of const in C++.

(h) How are Virtual functions are implemented in C++?

(i) What are characteristics of inline functions. List the differences between inline functions and macros.

(j) What are namespaces? What are their advantages?

(2.5 * 10 = 25)

Q2. (a) What is structured programming? How it is different from the object oriented programming? (4)

(b) What is the principle reason of passing arguments by Reference? Explain with a C++ code. (4)

(c) Can a programmer free() pointers allocated with new? Can he delete pointers allocated with malloc()? Explain. (4.5)

OR

(a) Explain the volatile keyword of C++ with a suitable example. (2)

(b) Explain the concept of Dynamic binding with the help a program. (3)

(c) Explain returning by reference concept by using a suitable example. (4.5)

(d) How one can achieve information hiding in C++? Explain. (3)

Q3. (a) Write a program in C++ to illustrate the concept of meta class. (4)

(b) Write a program to find the sum of two numbers using friend function; when first number is the data member of one class and the second is of another class. (5)

(c) Write short note on Default arguments and how these are used in function call? (3.5)

OR

(a) How do we allocate multidimensional array using new? (3)

(b) Write a program using classes to multiply two complex numbers. Include multiple constructors as necessary. Also incorporate the concept of returning objects. (6.5)

(c) Write down the syntax for defining a member function outside the class specification. How these functions can be made inline? (3)

P.T.O.

Q4. (a) Discuss ambiguity in multiple inheritance. How ambiguity can be resolved in multiple inheritance? Illustrate with a proper example. (5)

(b) Discuss the methods to overload an operator in C++. Write C++ programs to overload unary minus(-) with each methods. (7.5)

OR

(a) Write short note on pure virtual functions. Also discuss the need of pure virtual functions. (3)

(b) Write short note on composition v/s classification hierarchies. (3)

(c) Write a program to convert an int datatype to a class datatype(class should be of your choice). [Use type conversion from built-in datatype to class datatype.] (6.5)

Q5. (a) What are file modes/open mode bits? What is their significance in C++ file handling programs? (4.5)

(b) Write a generic class to sort n items in descending order. Values should be entered by using keyboard. (5)

(c) Write short note on stream and its types. (3)

OR

(a) Explain try/catch structure in C++ and its variant from the exception class. (4.5)

(b) Write a program using class to open a text file and replacing all the vowels in lower case into upper case and vice-versa leaving other character as it is. Also count the number of vowels. (8)

****