(Please write your Exam Roll No.) *Exam Roll No.* 01314220007

END TERM EXAMINATION

THIRD SEMESTER [BCA] DECEMBER-2008

Paper Code: BCA209	***Subject: Object Oriented Programming***
Paper Id: 20209	***(Batch 2005-2007)***
Time : 3 Hours	***Maximum Marks :75***

Note: Attempt all questions. Internal choice is indicated.

Q1 (a) Give five main advantages of object-oriented programming. Describe each advantage by giving a suitable example.
(b) Describe the usage of const in C++.
(c) Give an example of a generic class. Explain it.
(d) What is the difference between a default constructor and a copy constructor?
(e) How are virtual functions implemented in C++?
(f) What is multiple inheritance? What are its advantages and disadvantages?
(g) Why should inline functions be used instead of plain old # define macros?
(h) Give an example in the form of code to explain the use of a template.
(i) Why is debugging required? Give suitable examples to justify it.
(j) What is Exception handling. What are its uses? **(2.5x10=25)**

Q2 (a) Write a C++ program to show the concept of inheritance. **(4.5)**
(b) Write short notes on:- **(4x2=8)**
(i) Information hiding (ii) Abstraction (with suitable examples/program.)

OR

(a) What is polymorphism? How can run time polymorphism be implemented? How is late binding related to it? Give suitable examples. **(6.5)**
(b) Give short notes on:- **(3x2=6)**
(i) Dynamic memory allocation (ii) Functional decomposition

Q3 (a) Create a class called 'student'. Allow multiple constructors in the class. Include methods to generate report-card of marks obtained in 5 subjects. The program should run and display the results for atleast 20 students. The program should use the concept of dynamic memory allocation. **(6.5)**
(b) Give short note on garbage collection in C++. **(3)**
(c) How do we allocate multidimensional array using new? **(3)**

OR

(a) Write a program in C++ to show the concept of metaclass. **(4)**
(b) How are C++ objects laid out in memory? **(4)**
(c) Can a programmer free ( ) pointers allocated with new? Can he delete pointers allocated with malloc ( )? Explain. **(4.5)**

Q4 (a) Write short notes on:- **(3+3)**
(i) Method and Parametric polymorphism.
(ii) Differences between overloading and overriding.
(b) Write a class "linked queries" in C++. This class should have functions for adding or deleting an item from the queue after necessary checks. The linked queue is not to be implemented using arrays. **(6.5)**

OR

(a) Give difference between composition and classification hierarchy using suitable code. **(3)**
(b) Give a code in C++ to show the concept of operator overloading. **(6.5)**
(c) Name three operators that cannot be overloaded. Give their symbols in C++ also. **(3)**

Q5 (a) Write a generic swap macro in C:- A macro which can swap any type of data (ie, int, char, float, struct etc.) **(5)**
(b) Write short notes on:- **(2.5x3=7.5)**
(i) Namespaces and their advantages.
(ii) Difference between multilevel and multiple inheritance.
(iii) Persistant objects.

OR

(a) Write a program in C++ to show the concept of exception handling. How do we change the string length of an array of char to prevent memory leaks even if someone throws an exception? **(6.5)**
(b) Write short notes on:- **(2x3=6)**
(i) file open ( ) and close ( ) syntax.
(ii) Streams and its types.
(iii) Utility of generic class.

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