(Please write your Exam Roll No.) Exam Roll No. 09142027

END TERM EXAMINATION

THIRD SEMESTER [BCA] DECEMBER 2010

Paper Code: BCA209 **Subject: Object Oriented Programming**
Paper ID: 20209

Time : 3 Hours **Maximum Marks : 75**

Note: Attempt all questions.

Q1 Attempt **all parts** of the following:-

(a) List the difference between function overloading and overriding. (3)

(b) Differentiate between the new and malloc(). Can delete be used to free memory allocated using the malloc()? (3)

(c) Explain the procedure to overload the pre-increment and post-increment operators with suitable examples. (3)

(d) Write a function to return the division of two complex numbers. The real part and imaginary part could be int, float or double. (4)

(e) Write the characteristics of inline functions. List the differences between inline functions and macros. (3)

(f) What are the abstract classes? Give example. (3)

(g) What are the static data members? Explain and give a suitable example. (3)

(h) Explain the differences between abstraction and encapsulation. (3)

Q2 (a) (i) What is structured programming? How is it different from the object oriented programming? (4.5)

(ii) Write a program to calculate the roots of any quadratic equation dealing complex roots also and printing them in appropriate form. (4)

(iii) Differentiate between the run time memory management in C++ from C. (4)

OR

(b) Create a time class to perform following operations over time (hh:mm:ss) using 24 hrs. Clock. (12.5)

(i) To create or initialize any object of type time using constructors.

(ii) To find addition of two times using operator overloading. For e.g. t1=t2+t3. or t1=27+t2; must be valid statements. In the second statement 27 seconds are added to t2.

(iii) Overload the operator>to compare two times. Thus, t1>t2 or t1>35 can be compared resulting the result true or false.

(iv) To print the time in the format hh:mm:ss.

Q3 (a) (i) How are the C++ objects created using new stored in the memory? (4)

(ii) Write a program to multiply two matrices. Both matrices order will be entered through keyboard and are created accordingly at run time. The matrix containing multiplication is also created at run time. Use the constructors and destructors. (8.5)

OR

(b) (i) Write a program in C++ to illustrate the concept of metaclass. (3)

(ii) Give the advantages of the reference variables over the pointer variables. Under which situation they should be avoided? (3)

(iii) What are the nameless objects? Why are they used in C++? (3)

(iv) Discuss the ways so that a class can't be inherited by any means. (3.5)

P.T.O.

Q4 (a) (i) Name the operators and their symbols which can't be overloaded in C++. **(4)**

(ii) Explain the nested classes with suitable example. **(4)**

(iii) What is this pointer? What happens on the statement: delete this; in a class. Write a program demonstrating the use of this pointer. **(4.5)**

OR

(b) (i) What is a copy constructor? Explain with example. **(3)**

(ii) Write a program to support the following statements over strings in C++. **(9.5)**

(1) int p="xyz"; to store the length 3 of "xyz" into p.

(2) s1="hello" +s2; to find concatenation of "hello" and s2 into s1.

(3) S1=~s2; to find reverse of s2 into s1.

Q5 (a) (i) Explain the try/catch structure in C++ and its variants from the exception class. **(4.5)**

(ii) Discuss the hierarchy of stream class. **(3)**

(iii) Write a program using class for opening text file and replacing all lowercase letters to uppercase and vice versa leaving other characters intact. **(5)**

OR

(b) (i) Explain the persistent objects. **(2)**

(ii) Differentiate between the multilevel and multiple inheritances. **(4)**

(iii) Explain the syntax and working of any six file functions in stream classes. **(6.5)**

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