BACHELOR IN COMPUTER APPLICATIONS (BCA)

Term-End Practical Examination

04575

June, 2011

CS-72P : C++ AND OBJECT ORIENTED PROGRAMMING

Time allowed : 2 hours   *Maximum Marks : 100*
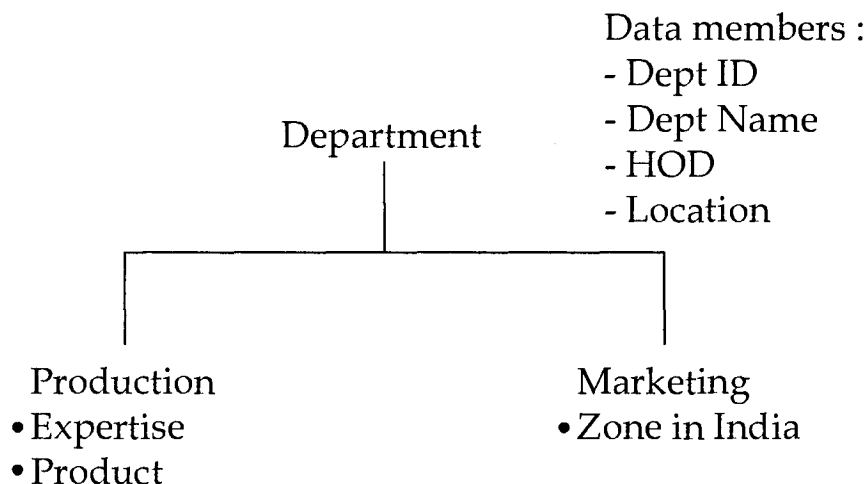   *(Weightage : 15%)*

General Instructions :
(i)   *There are two **compulsory** questions in this paper of **40** marks each. Rest **20** marks are for viva - voce.*
(ii) *You must write appropriate main ( ) function and test your programs.*
(iii) *Write/print the programs, input and results on your answer-script.*
(iv) *Make and state suitable assumptions, if any.*

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1. Design and implement a class "Longtime" using C + +. The class "Longtime" represents **40** the time as hours, minutes and seconds using 24 hour - time format. The class should have a constructor that initialises time to 12:00:00. The class has two member functions as follows :-

   (a) "Difference Time" which overloads the − (minus) operator to find the difference of time stored in two different Longtime objects ; and

   (b) "Print Time" that prints the time as a.m. or p.m. for example, if a Longtime object has the time stored as 15:15:30, then this print time function will output : 03:15:30 p.m.

2. Consider the following class hierarchy along with the suggested data members for the **40** classes

                                        Data members :
                                        - Dept ID
                    Department   - Dept Name
                       | - HOD
                       | - Location
          ┌────────────┴────────────┐
          | |
     Production   Marketing
     • Expertise   • Zone in India
     • Product

A production department produces products in a specified product line in which the department has expertise.

Design and implement the classes in the hierarchy using C++. You may add more data members in the classes, if needed. You should include at least one constructor in each class. All the classes should have a member function "print_department_info( )" which prints all the data of an object of that class. You should demonstrate the polymorphism using the print_department_info( ) function along with appropriate main ( ) function.

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