No. of Printed Pages : **2**

SET - 3

BACHELOR IN COMPUTER APPLICATIONS (BCA)

Term-End Practical Examination

02009

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 the 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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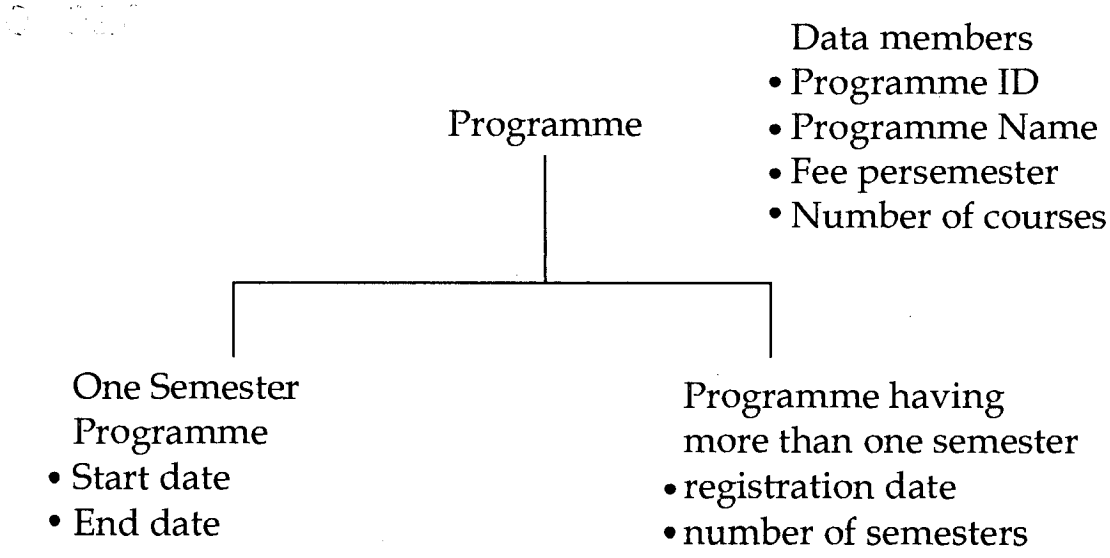
1. Design and implement a class using C++ that stores a two dimensional vector of the kind $xi + yj$. The class should include a constructor that initialises the vector to specified x and y values. The class should also has a function to find the magnitude of the vector. (Please note magnitude of the given vector is $\sqrt{x^2 + y^2}$) **40**

Also implement on overloaded × (multiply) operator for calculating the dot product of vectors. The dot product may be calculated as :

$$(x_1 i + y_1 j)(x_2 i + y_2 j)$$
$$= x_1 x_2 + y_1 y_2$$

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



Design and implement suitable classes for the hierarchy using C+ +. You may add more data members in the classes. You should include at least one constructor in each class. Also implement a member function print_programme details( ) in each class that prints all the data of the object of that class. You should demonstrate polymorphism using this print-programme details( ) function and appropriate main ( ) function.
