

**BACHELOR OF COMPUTER APPLICATIONS (Pre-revised)
(BCA)**

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Term-End Practical Examination

December, 2016

CS-72(P)/S3 : C++ AND OBJECT ORIENTED PROGRAMMING

Time : 2 Hours

Maximum Marks : 100

(Weightage : 15%)

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- Note :**
- (i) *There are two **compulsory** questions in this paper carrying 40 marks each. Rest 20 marks are for viva-voce.*
 - (ii) *You must write appropriate main() function and test your programs.*
 - (iii) *Write / print your programs, input and results on your answer-sheet.*
 - (iv) *Make and state suitable assumptions, if any.*
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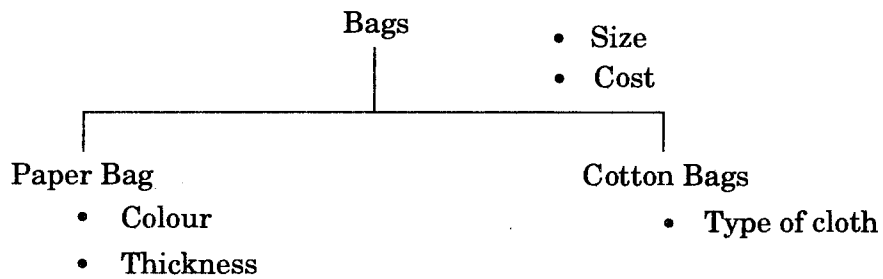
1. Design and implement a class named "Scientist" using C++. The class should store the name of the scientist, his/her area of research, number of papers published and the institute in which s/he is working. The class should have the following two member functions :

- (i) A function to input values to data members of an object.
- (ii) A function that displays all the information of an object.

Write appropriate main() function that creates an array of three "Scientist" objects. The main() function should demonstrate all the functionality of the given class. The data stored in the objects should be meaningful.

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2. Consider the following class hierarchy along with suggested data members :



Design and implement the classes in the hierarchy using C++. You may add more data members, if needed. You should include at least one constructor in each class. All classes should have a member function `print_bag_info()` that displays all the data stored in an object of that class. You must demonstrate polymorphism using the `print_bag_info()` and `main()` functions.

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