No. of Printed Pages : 2

CS-72(P)/S4

BACHELOR OF COMPUTER APPLICATIONS (Pre-revised)

(BCA)

Term-End Practical Examination

00480

June, 2018

CS-72(P)/S4 : C++ AND OBJECT ORIENTED PROGRAMMING

Time : 2 Hours *Maximum Marks : 100*

(Weightage : 15%)

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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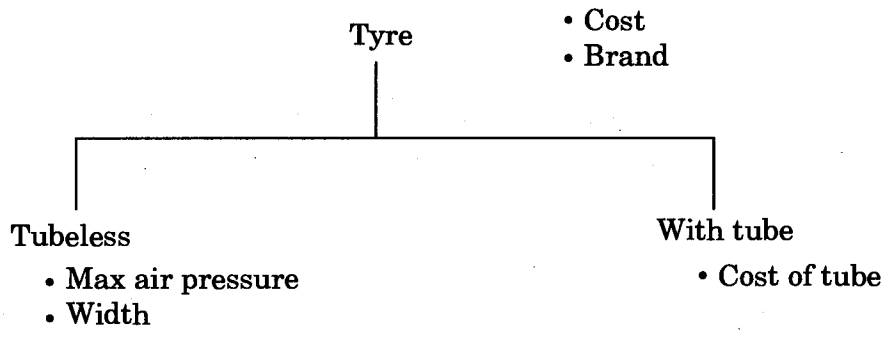
1. Design and implement a class "Cylinder" using C++. The class should have the following data members and member functions :

- The data members of the class should include :
  - Radius of base
  - Height of the cylinder
- Member functions of the class should include :
  - A member function that inputs radius and height values in a cylinder object.
  - A member function that calculates the curved surface area of a cylinder (using formula $2\pi rh$)
  - A member function that calculates the volume of the cylinder (using formula $\pi r^2 h$)

Write appropriate main( ) function that creates an array of three "Cylinder" objects. The main( ) function should demonstrate all the functions of the "Cylinder" class. *40*

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 in the classes, if needed. You should include at least one constructor in each class. All the classes should have one member function print_info( ) which displays all the information of the object of that class. Demonstrate polymorphism using the main( ) and print_info( ) functions. *40*