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| **Problem**  **No.** | **Problem Name** | **Page**  **No.** |
| 01 | Create a class ABC that contains one double type data member. Overload all the four arithmetic operators so that they operate on the object of class ‘ABC’. |  |
| 02 | Define a class to represent a bank account that includes the following members: - Data Members: name of the depositor, account number, type of account, balance amount in the account. - Member function: To assign initial values, to deposit an amount, to withdraw an amount, to display name and balance. |  |
| 03 | Create a class time that has data members called hour, minute, second and necessary member functions. Write a complete++ program to multiply two time type objects. |  |
| 04 | Write a class to represent a vector (a series of float values) that includes the member functions to perform the following tasks:   * To create the vector To modify the value of a given element * To add two vectors * To multiply by a scalar value * To display the vector. |  |
| 05 | Create two classes DM and DB which store the value of distances: DM in meter, centimeter and DB in feet, inches. -Write a program that can read values for the class objects. -Add one object of DM with another object of DB using friend function. -Display all the objects in appropriate units. (The object that stores the results may be in DM or DB type, depending on the units in which the results are required. |  |
| 06 | Create a class complex that has two data members called real and imag. Include necessary data members and member functions to input and display value of data members. Also include friend functions to add and subtract of two complex type objects. Write complete ++program to test this. |  |
| 07 | Define a class string that could work as a user defined string type. Include constructors that will enable u to create and uninitialized string-sting s1(string with length 0) and also an initialized string with string-string s2(National University). Include a function that adds two strings to make a third string.  Write a program to test your class to see that it does the following task:  Creates uninitialized string objects. Creates objects with string objects.  Creates objects with string constant. Concatenate two strings properly.  Display the desired string object. |  |
| 08 | Create an abstract base class called ‘shape’. Derive class ‘rectangle’ from the base class ‘shape’ and a class ‘cube’ from the rectangle class.   * Data Members: length, width for class ‘rectangle’ ‘height’ for class ‘cube’ * Member Functions: area(), print()for class ‘rectangle’ volume(), print()for class ‘cube’. |  |
| 09 | Given the following base class:  class base {  public:  double height, width;  }  Create three derived classes called ‘rectangle’ and ‘isosceles’ and ‘cylinder’ that inherit ‘base’ class. Each class has a function area() that returns the area of a ‘rectangle’, ‘isosceles’ and ‘triangle’, as appropriate. Use parameterized constructors to initialized height and width.  Write the complete program to test this. |  |
| 10 | An educational institute wishes to maintain a database of its employees. The database is divide into a number of classes whose hierarchical relationships are shown below :    Specify all the classes and define functions to create the database and retrieve of individual information as and when required.  (a) Add another data class called education that holds one pieces of educational information, namely, higher qualification in general education and highest professional qualification. Teacher and officer should inherit this new class. |  |