Jagan Institute of Management Studies

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BCA 271 Practical C++

Practical Assignment II- Inheritance and Polymorphism

Instructions:

- All questions are compulsory.
- Print should be taken only on one side of the page
- Output should be taken with black print on white background
- Prints must be taken using notepad, notepad++ or any text editor **but not using MS-Word** or any word processor.
- Every print must bear the date and time of printing in footer section
- Before starting every program, create a comment section and write your name, enrolment number and problem statement. A sample is given as follows:

```
/*
Programmer name : xxxxxxxxxxxx
Enrolment number: 6878787878787
Problem : Write a program to demonstrate use of multiple catch……
Date:
*/
```

No	Practical	CO
1	WAP to show the usage of constructor in base and derived classes, in multiple inheritance	CO3
2	Implement the following class hierarchy considering appropriate data members and member functions. A class **Student** acting as a base class with some data members. Two classes **Test** and **Score** deriving from Student, both with appropriate data members. A class **Performance** deriving from both Test and Score.	
3	Write a program to store details of a school. A class '**person**' shows name, age, address. A class **'student'** has enrolment_no & batch, and also has all details of person. A class '**teacher**' has salary and experience along with all details of a person. Implement this using inherited classes, with default, parameterized and copy constructors	CO3
4	In previous question, add a new class **Research_Scholar** which inherits from both student and teacher, and has new data member "research title". Make sure that no data is duplicated in this process.	CO3
5	WAP to run stack class with push() and pop() functions and following details- a. Derive 3 classes arraystack, linkedstack and multistack from base class stack b. Make it compulsary for every derive class to override push() , pop() and display methods of base class stack. c. Every derived class can have its own data members as follows: i. Arraystack has a dynamic array ii. Linkedstack will have a structure object for linkedlist	CO3

	iii. Multostact will hav a 2D array d. Implement this program using dynamic binding.	
6	WAP with student as an abstract class and create many derived classes such as engineering, medical and science etc from student class. Student class must have pure virtual functions for data input and output which are implemented in all derived classes. At user screen at run-time, dynamic objects of different classes are created and referred by a common pointer of student class	CO3
7	Create two classes and square and rectangle with side and length and breadth as data members respectively. WAP to convert one object type to another using overloaded assignment operator and parameterized constructor.	CO3
8	Write a string class which contains a string and its size. Write following for the class: a. Write input and output functions. b. Create proper constructors and destructors. Overloaded +, = and > operators for concatenation, assignment and comparison of string	CO3
9	WAP to implement addition, subtraction and multiplication of matrices using overloaded operators	CO3
10	Prepare a time class to store time at a given instance. Include following methods: a) Methods to increment time and decrement time taking into account the hour minute scale, b) Create or initialize object of type time using constructors. c) To find addition of two times using T1=T2+T3 or T1=27+T3 (in this case const. should be treated as seconds). Use friend function for this. d) Overload the operator > to compare two times resulting in True or False. e) To print the time in format HH: MM: SS.	CO3
11	Write program to overload Binary + to add two similar types of objects. (Both with and without using friend functions)	CO3
12	WAP to implement += and = operator	CO3
13	WAP to convert meter to centimeter and vice versa, using data conversions and operator overloading	CO3