**ASSIGNMENT 5**

**Classes and Objects**

1. Write a JAVA program to get the details of the students (Name, Roll No, Department, and Age) from the user. Get the details of 5 students. Using setDetails() function set the values and use display() function to print the details of the five students. Give a provision to the user asking which students details have to be printed. According to the user input print corresponding user details.
2. Write a JAVA program to find the area of a rectangle. Use parameterized constructor to set the values of length and breadth (Get user Input)
3. Print the multiplication table of 5 using while loop and use a destructor to deallocate the memory.
4. Implement a simple calculator and use this keyword to set the user input (+, -, \* ,/, % and operand values). Use separate method for every operation. Use switch case to call the corresponding function in the class.
5. Write a program to get a polynomial degree of a polynomial and its coefficient as input and get the input for the variable in the polynomial and compute the value of the expression (Use static methods and variables).
6. Write a JAVA program to get the details in a Stationary shop (Item ID, Name, Color, Price) using getter and setter (Use array of objects)
7. Given that an EMPLOYEE class contains following data members: Employee number, Employee name, Basic, DA, IT, Net Salary and printdata members. Write a JAVA program to read the data of N employee and compute Net salary of each employee (DA=52% of Basic and Income Tax (IT) =30% of the gross salary; GS = DA + basic; NS = GS - IT)
8. Write a class RESERVATION that allow you to book a person on a holiday. Get the details of the persons (Name, age, place of visit). Print the bill.
9. Write a JAVA program to get 5 marks of the students and find the average marks and print the grade (>90 -->A, >75 -->B, >50-->C) (Use classes, objects, member functions, constructor)
10. Write a java program to create a class named Shape that contains two integers and a method named printArea(). Provide three classes named Rectangle, Triangle and Circle such that each one of the classes extends the class Shape. Each one of the classes contain only the method printArea( ) that prints the area of the given shape.
11. Write a JAVA program to get and display the details of staff name and designation in a class, department, salary in another class and awards in the third class using Inheritance.
12. Write a java program to create a super class called Figure that receives the dimensions of two dimensional objects. It also defines a method called area that computes the area of an object. The program derives two subclasses from Figure. The first is Rectangle and second is Triangle. Each of the sub classes override area() so that it returns the area of a rectangle and triangle respectively.
13. Create a base class Fruit which has attributes,taste and size. A method called eat() is created which describes the name of the fruit and its taste. Inherit the same in two other classes Apple and Orange and override the eat() method to represent each fruit taste.
14. Use “+” operator to concatenate two string and perform add of float numbers and whole numbers using the concept of method overloading.
15. Write a program to create a class named Shape. It should contain 2 methods, draw() and erase() that prints “Drawing Shape” and “Erasing Shape” respectively. For this class, create three sub classes, Circle, Triangle and Square and each class should override the parent class functions - draw () and erase (). The draw() method should print “Drawing Circle”, “Drawing Triangle” and “Drawing Square” respectively. The erase()method should print “Erasing Circle”, “Erasing Triangle” and “Erasing Square” respectively. Create instance for Circle, Triangle and Square in the following way and observe the polymorphic nature of the class by calling draw() and erase() method using each object. Shape c=new Circle(); Shape t=new Triangle(); Shape s=new Square().