Course:B.SC.(Physical Sciences)

Paper: Programming in Java
Semester: V

Marks:75 Theory+25 Internal Assessment

Week	Topic
Week 1	Introduction of Java, Features of Java, JDK Environment. Object Oriented Programming Concept.
Week 2	Object Oriented Programming Concept. Paradigm, Classes, Abstraction, Encapsulation, Inheritance, Polymorphism, Difference between C++ and Java. Overview of Programming.
Week 3	Java Programming Fundamental: Structure of java program, Data types, Variables, Operators, Keywords, Naming Convention, Tokens.
Week 4	Decision Making (if, switch), Looping (for, while), Programs related to topics.**Assignment 1**.
Week 5	Type Casting. Classes and Objects. Class member. Creating Classes and objects, Memory allocation for objects.
Week 6	Constructor, Constructor overloading, Method overloading. Recursion. Programs. **Test 1**.
Week 7	Nested and Inner classes Arrays and Strings: Arrays, Creating an array, Types of Arrays, String class Methods, String Buffer methods.
Week 8	Implementation of Inheritance, Implementation of Polymorphism.method overriding. Abstract Class.
Week 9	Modifiers And Access Control, Abstract class methods.Interfaces.Package concept and implementation. User defined packages, Programs.
Week 10	Exception handling, type, using try catch, and multiple catch, nested try, throw and finally. **Assignment 2.**
Week 11	User defined Exceptions. File Handling: Byte Stream, Character Stream, File IO Basics, File Operations, Creating file, Reading file, Writing File.
Week 12	Applet Programming: Introduction, Types Applet, Applet Life cycle, Creating Applet, Applet tag.**Test 2**.
Week 13	Revision and doubt classes

Software Lab based on Java

1. WAP to find the largest of n natural numbers.

2. WAP to find whether a given number is prime or not.

3. Write a menu driven program for following: a. Display a Fibonacci series b. Compute Factorial of a number c. WAP to check whether a given number is odd or even. d. WAP to check whether a given string is palindrome or not.

4. WAP to print the sum and product of digits of an Integer and reverse the Integer.

5. Write a program to create an array of 10 integers. Accept values from the user in that array. Input another number from the user and find out how many numbers are equal to the number passed, how many are greater and how many are less than the number passed.

6. Write a program that will prompt the user for a list of 5 prices. Compute the average of the prices and find out all the prices that are higher than the calculated average.

7. Write a program in java to input N numbers in an array and print out the Armstrong numbers from the set.

8. Write java program for the following matrix operations: a. Addition of two matrices b. Summation of two matrices c. Transpose of a matrix d. Input the elements of matrices from user.

9. Write a java program that computes the area of a circle, rectangle and a Cylinder using function overloading.

10. Write a Java for the implementation of Multiple inheritance using interfaces to calculate the area of a rectangle and triangle.

11. Write a java program to create a frame window in an Applet. Display your name, address and qualification in the frame window.

12. Write a java program to draw a line between two coordinates in a window.

13. Write a java program to display the following graphics in an applet window. a. Rectangles b. Circles