L. J. Institute of Engineering and Technology

Computer Programming Using JAVA-1

Internal Practical Examination Semester I 2022

Easy Practical List

1) WAP to print grade of a student using following rules :
   Percentage >70 means Grade A
   Percentage 60-70 means Grade B
   Percentage 50-60 means Grade C
   Percentage <50 means Grade F

2) WAP to accept three numbers from user and Print Maximum number using nested if else.

3) WAP to enter a character and check whether it is a vowel or consonant using switch statement.

4) WAP to print multiple of N from given range of integers. For example, if N=5 and range is [17, 45]

it prints 20, 25, 30, 35, 40, 45. Take input using Scanner class.

5) WAP to count ODD and EVEN numbers from given 10 numbers.

6) WAP to check whether the given number is Prime or not.

7) WAP to find out Armstrong Numbers from a given number. (Given number should be any digit).

8) WAP to generate Fibonacci series of numbers.

9) WAP to find out sum of first and last digit of a given number.

10) WAP to print following pattern using loop statement for n row.

```
1
1 3
1 3 5
1 3 5 7
```

11) WAP to print following pattern using loop statement for n row.

```
*
# #
* * *
# # # #
* * * * *
# # # # # #
* * * * * * *
```

12) WAP to print following pattern using loop statement for n row.

1

0 1

1 0 1

0 1 0 1

13) WAP to print following pattern using loop statement for n row.

1

2 3

4 5 6

7 8 9 10

14) WAP to print following pattern using loop statement for n row.

1

2 2

3 3 3

4 4 4 4

5 5 5 5 5

15) WAP to check given string is palindrome or not.

16) WAP to accept a string and count the number of vowels present in a string.

17) WAP to swap two numbers without using temporary variable.

18) WAP that determines if a year is a leap year or not by using if…else.

19) WAP to find 1+3/5+5/7+7/9+... series. Print addition of first N part.

20) Write JAVA program to add two 1-D array elements in third 1-D array.

Hard Practical List

1) Write a class named Rectangle to represent a rectangle. It contains following members:

Data: width(double) and height (Double) that specify the width and height of the rectangle.

Methods:

1. A no-arg constructor that creates a default rectangle.

2. A constructor that creates a rectangle with the specified width and height.

3. A method named getArea() that returns the area of this rectangle.

4. A method named getPerimeter() that returns the perimeter.

2) Write a program that creates an integer array and then uses a for loop to check whether the array is sorted from smallest to largest. If so, it prints “sorted” otherwise it prints “Not sorted”. Use Class, object & method.

3) Write a JAVA program to create a super class called figure that stores the dimensions of a two-dimensional object. It also defines a method called area () that computes the area of an object. The program derives two sub classes from figure. The first is rectangle and the second is Triangle. Each of these subclasses overrides area (), so that it returns the area of a rectangle and a triangle respectively.

4) WAP to calculate nCr using recursion. nCr = n! / (r! * (n-r)!)

5) WAP to find GCD of the 2 numbers using recursion.

6) Write a program that prompts the user to enter the number of students, the students’ names, and their scores, and prints student names in decreasing order of their scores. Use Class, object & method.

7) A pentagonal number is defined as n(3n–1)/2 for n = 1, 2, . . ., and so on. Therefore, the first few numbers are 1, 5, 12, 22, ... Write a method with the following header that returns a pentagonal number:

public static intgetPentagonalNumber(int n)

Write a test program that uses this method to display the first 100 pentagonal numbers with 10 numbers on each line

8) Create a class named 'Rectangle' with two data members 'length' and 'breadth' and two methods to print the area and perimeter of the rectangle respectively. Its constructor having parameters for length and breadth is used to initialize length and breadth of the rectangle. Let class 'Square' inherit the 'Rectangle' class with its constructor having a parameter for its side (suppose s) calling the constructor of its parent class as 'super(s,s)'. Print the area and perimeter of a rectangle and a square. Print the area of 10 squares.

9) Write a Java program to convert Decimal to binary using recursion.

10) WAP to print following pattern using loop statement for n row.

1

1 2 1

1 2 3 2 1

1 2 3 4 3 2 1

1 2 3 4 5 4 3 2 1

11) WAP to print following pattern using loop statement for n row.

```
1234567
 234567
  34567
   4567
    567
     67
      7
     67
    567
   4567
  34567
 234567
1234567
```

12) WAP to print following pattern using loop statement for n row.

```
1
2 6
3 7 10
4 8 11 13
5 9 12 14 15
```

13) WAP to print following pattern using loop statement for n row.

```
   *
  * *
 *   *
*     *
 *   *
  * *
   *
```

14) WAP to print following pattern using loop statement for n row.

```
1 2 3 4 5 6 7 8 9
  2 3 4 5 6 7 8
    3 4 5 6 7
      4 5 6
        5
      4 5 6
    3 4 5 6 7
  2 3 4 5 6 7 8
1 2 3 4 5 6 7 8 9
```

15) Write a java program to find nPr using nested class concept.

16) It is required to compute SPI (semester performance index) of n students of a class for their registered subjects in a semester. Assume that all students register for 6 subjects and each subject carry 5 credits. follow method for computation of SPI.

Declare a class called student having following data members:

id_no, marks_obtained(out of 100) for 6 subjects and spi.

Define constructor, display and calculate_spi methods. Define main to process data of n students

Use SPI calculation formula
(sub1*credits+sub2*credits+sub3*credits+sub4*credits+sub5*credits+sub6*credits)/(total credits*10)

17) Declare a class called coordinate to represent 3 dimensional Cartesian coordinates(x, y, and z) define following method.
- Initialize Method
- Display to print values of members
- Add_coordinates, to add three such coordinates object to produce a resultant coordinates object.
- Main , to show use of above method

18) Write a java program to reverse elements of array using logic of swapping elements. Here, use concept of passing array as argument to method.

19) Write a Java Program to Create a class Account. It has three data member account id, name and balance.
Define method to assign value and display value. Define method that search account number given by the user by passing array to method. If account number exists, print detail of that account. Write a program using array of object. Declare at least 5 account and print details.

20) WAP to read two matrix from the user and store the multiplication of two matrix in the resultant matrix. i.e. C=A * B & also find a transpose of given matrix.