A. Write a menu driven Java program which will read a number and should implement the following methods : Factorial(), Reverse of a Number(), Test Armstrong(), Test Palindrome(), Test Prime(), Fibonacci Series()

```
import java.util.Scanner;
import java.lang.Math;

public class AllInOne {
  public static void main(String[] arg) {

    // Opetation menu
    Scanner sc = new Scanner(System.in);
    System.out.println(
        "Choose a operation: \n 1. Factorial\n 2. Reverse of a Number\n
3. Test Armstrong\n 4. Test Palindrome\n 5. Test Prime\n 6. Fibonacci
Series");
    int operation = sc.nextInt();
    int num;
    switch (operation) {

      // Factorial()
      case 1:
        System.out.println("Enter the number: ");
        num = sc.nextInt();

        int factorial = 1;
        for (int i = num; i > 0; i--) {
          factorial *= i;
        }
        System.out.println("The Factorial is: " + factorial);
        break;

      // Reverse of a Number()
      case 2:
        System.out.println("Enter the number: ");
        num = sc.nextInt();

        int reverse = 0;
        for (int j = num; j > 0; j /= 10) {
          reverse = ((10 * reverse) + (j % 10));
        }
        System.out.println("The Reverse is: " + reverse);
        break;

      // Test Armstrong()
      case 3:
        System.out.println("Enter the number: ");
        num = sc.nextInt();
        int cube = 0;
        for (int k = num; k > 0; k /= 10) {
```

```
            cube += Math.pow(k % 10, 3);
          }
          if (cube == num) {
            System.out.println(num + " is a Armstrong Number");
          } else {
            System.out.println(num + " is not a Armstrong Number");
          }
          break;
        // Test Palindrome()
        case 4:
          System.out.println("Enter a string: ");
          String str = sc.next();
          int len = str.length();
          int palindrome = 1;
          for (int i = 0; i < len / 2; i++) {
            if (str.charAt(i) != str.charAt(len - 1)) {
              palindrome = 0;
              break;
            }
          }
          if (palindrome == 1) {
            System.out.println("The string " + str + " is PALINDROME");
          } else {
            System.out.println("The string " + str + " is NOT PALINDROME");
          }

          break;
        // Error
        default:
          System.out.println("Opertion Not Available");
          break;
      }
      sc.close();
}}
```

Output:

```
PS C:\Users\Ajay kumar\Desktop\SEIT\Java Practical\1 - Write a program to demonstrate java control structur
top\SEIT\Java Practical\1 - Write a program to demonstrate java control structures\" ; if ($?) { javac AllI
InOne }
Choose a operation:
 1. Factorial
 2. Reverse of a Number
 3. Test Armstrong
 4. Test Palindrome
 5. Test Prime
 6. Fibonacci Series
1
Enter the number:
3
The Factorial is: 6
PS C:\Users\Ajay kumar\Desktop\SEIT\Java Practical\1 - Write a program to demonstrate java control structur
```

B. Implement a java program to calculate gross salary & net salary taking the following data. Input: empno, empname,basic salary. Process:DA=70% of basic,HRA=30% of basic,CCA=Rs240/- PF=10% of basic,PT=Rs100/-

```java
import java.util.Scanner;

public class Salary {
  public static void main(String args[]) {
    Scanner sc = new Scanner(System.in);

    System.out.println("Enter Name");
    String name = sc.next();
    System.out.println("Enter Emp Number");
    int erpno = sc.nextInt();

    System.out.println("Enter Basic  Salary");
    double basicSalary = sc.nextDouble();

    double DA = 0.7 * basicSalary;
    double HRA = 0.3 * basicSalary;
    double CCA = 240;
    double PF = 0.1 * basicSalary;
    double PT = 100;
    double gross_sal = basicSalary + DA + HRA + CCA;
    double net_sal = gross_sal - PF - PT;

    System.out.println("The gross salary is " + gross_sal);
    System.out.println("The net salary is " + net_sal);
    sc.close();
  }
}
```

Output:

```
TERMINAL   PROBLEMS 3   OUTPUT   DEBUG CONSOLE   SERIAL MONITOR   COMMENTS

PS C:\Users\Ajay kumar\Desktop\SEIT\Java Practical\1 - Write a program to demonstrate jav
top\SEIT\Java Practical\1 - Write a program to demonstrate java control structures\" ; if
InOne }
Choose a operation:
 1. Factorial
 2. Reverse of a Number
 3. Test Armstrong
 4. Test Palindrome
 5. Test Prime
 6. Fibonacci Series
1
Enter the number:
3
The Factorial is: 6
PS C:\Users\Ajay kumar\Desktop\SEIT\Java Practical\1 - Write a program to demonstrate jav
```