

Department of Computer Science
Final Term Exam Spring 2020

Subject: Object Oriented Programming (Lab)

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There are total **5** questions in this paper.

Note:

At the top of the answer sheet there must be the ID, Name and semester of the concerned Student.

Students must have to provide the output of their respective programs. Students have same answers or programs will be considered fail. Programs in Java or codes should be explained clearly.

As this paper is online so incase of any ambiguity my Whatsapp no. is 034499121116.

**Each question carry equal marks.
Please answer briefly.**

Q1. How to check Even and Odd numbers in java using object oriented approach?

ANS:

```
import java.util.Scanner;

public class Odd_Even
{
    public static void main(String[] args)
    {
        int n;
        Scanner s = new Scanner(System.in);
        System.out.print("Enter the number you want to check:");
```

```
n = s.nextInt();
if(n % 2 == 0)
{
    System.out.println("The given number "+n+" is Even ");
}
else
{
    System.out.println("The given number "+n+" is Odd ");
}
}
```

OUTPUT:

```
javac Odd_Even.java
java Odd_Even
```

```
Enter the number you want to check:15
The given number 15 is Odd
```

Q2. How to add 2 complex numbers in java using object oriented approach?

ANS: class calc

```
{
    float real, img;

    calc() {}    // Do Nothing Constructor

    calc(float r, float i)
    {
        real = r;
        img = i;
    }

    void display()
```

```

    {
        System.out.println(real+" + i "+img);
    }

    calc add(calc c2)
    {
        calc res = new calc();

        res.real = real + c2.real;
        res.img = img + c2.img;

        return(res);
    }

    calc sub(calc c2)
    {
        calc res = new calc();

        res.real = real - c2.real;
        res.img = img - c2.img;

        return(res);
    }
}

class Complex
{
    public static void main(String args[])
    {
        calc c1 = new calc(12.5F, 2.5F);
        calc c2 = new calc(09.5F, 0.5F);

        System.out.println("C1 is: ");
        c1.display();
        System.out.println("C2 is: ");
        c2.display();
    }
}

```

```
        calc c3 = new calc();

        System.out.println("Addition of C1 and C2 is: ");
        c3 = c1.add(c2);
        c3.display();

        System.out.println("Subtraction of C1 and C2 is: ");
        c3 = c1.sub(c2);
        c3.display();
    }
}
```

Output:

C1 is:

12.5 + i 2.5

C2 is:

9.5 + i 0.5

Addition of C1 and C2 is:

22.0 + i 3.0

Subtraction of C1 and C2 is:

3.0 + i 2.0

Q3. How to check Leap year in java using object oriented approach?

ANS:

```
class Leapyear
{
    int leap(int year)
    {
        int c=0;
        {
            if(year%400==0)
                c=1;
            else if(year%100!=0)
                {
```

```

        if(year%4==0)
            c=1;
        }
    }
    return c;
}
public static void main(String arg[])
{
    int y,a;
        Scanner sc=new Scanner(System.in);
    System.out.print("enter any calendar year :");
        y=sc.nextInt();
    Leapyear l=new Leapyear();
    if(y!=0)
    {
        a=l.leap(y);
        if(a==1)
            System.out.println(y+" is a leap year");
        else
            System.out.println(y+" is not a leap year");
    }
    else
        System.out.println("year zero does not exist");
}
}

```

OUTPUT:

```

enter any calendar year: 2016
2016 is a leap year

```

Q4. How to check that the input from the user is the vowel or not in java using object oriented approach?

ANS:

```
import java.util.Scanner;

public class JavaProgram
{
    public static void main(String args[])
    {
        char ch;
        Scanner scan = new Scanner(System.in);

        System.out.print("Enter an Alphabet : ");
        ch = scan.next().charAt(0);

        if(ch=='a' || ch=='A' || ch=='e' || ch=='E' ||
        ch=='i' || ch=='I' || ch=='o' || ch=='O' ||
        ch=='u' || ch=='U')
        {
            System.out.print("This is a Vowel");
        }
        else
        {
            System.out.print("This is not a Vowel");
        }
    }
}
```

OUTPUT:

Enter an Alphabet: e
This is a vowel

Enter an Alphabet: z
This is not a vowel

Q5. How to use power of a number in java using object oriented approach?

ANS:

```
public class PowerNumber
{
    public static void main(String[] args) {

        System.out.println("2 to the power 3 := " + power(2, 3));

        System.out.println("3 to the power 3 := " + power(3, 3));

        System.out.println("2 to the power 5 := " + power(2, 5));

        System.out.println("5 to the power 2 := " + power(5, 2));

        System.out.println("9 to the power 2 := " + power(9, 2));
    }

    /*
    * Calculate power using multiplication operator
    */

    public static long power(int x, int y) {

        long result = x;

        for (int i = 1; i < y; i++) {

            result = result * x;
        }
    }
}
```

```
}  
return result;
```

```
}
```

```
}
```

OUTPUT:

2 to the power 3 := 8

3 to the power 3 := 27

2 to the power 5 := 32

5 to the power 2 := 25

9 to the power 2 := 81