Q1)

```
class PyramidClass{
    public void pyramidC(){
        for(int i=5;i>0;i--){
            for(int j=1; j<=i;j++){
                System.out.print(j);
            }System.out.println();
        }
    }
}

public class pyramid {
    public static void main(String[] args) {
        PyramidClass p = new PyramidClass();
        p.pyramidC();
    }
}
```

OUTPUT:

```
12345
1234
123
12
1
```

Q2)

```
class Expression{
    public int factorial(int n){
        int f = 1;
        for(int i=2;i<=n;i++){
            f *= i;
        }
        return f;
    }
    public void sum(){
        double e=0;
        for(int i=1;i<=5;i++){
            e += 1.0/factorial(i);
        }
        System.out.println("The Result is : "+ e);

    }
}
class ExpressionMain{
    public static void main(String[] args) {
         Expression e=new Expression();
         e.sum();
    }
}
```

OutPut: The result is : 1.7166666666666668

Q3)

```
import java.util.*;
class BubbleSort{
    System.out.println("Enter the Size of Array");
    Scanner sc = new Scanner(System.in);
    int n = sc.nextInt();
    int a[] = new int[n];
```

```
    System.out.println("Enter the Array Element");
    public void create(){
        int c=0;
        for(int i=0;i<n;i++){
            c = sc.nextInt();
            a[i]=c;
        }
    }
    public void sortingB(){
        int t;
        for(int i=0;i<n;i++){
            for(int j=1;j<(n-i);j++){
                if(a[j-1]>a[j]){
                    t = a[j-1];
                    a[j-1]=a[j];
                    a[j]=t;
                }
            }
        }
    }
    public void display(){
        System.out.println("The Sorted array is \n");
        for(int i=0;i<n;i++){
            System.out.println("\t"+a[i]);
        }
    }
}
class BubbleSortMain {
    public static void main(String[] args) {
        BubbleSort b = new BubbleSort();
        b.create();
        b.sortingB();
        b.display();
    }
}
OUTPUT:
Enter the Size of Array 5
Enter the Array Element 34 21 56 7 3
The Sorted Array is 3 7 21 34 56

Q4)
import java.util.*;
class BSearchOprn{
    Scanner sc = new Scanner(System.in);
    int n = sc.nextInt();
    int a[] = new int[n];
    public void create(){
        int t=0;
        System.out.print("Enter the Sorted Array Element");
        for(int i= 0;i<n;i++){
            t = sc.nextInt();
            a[i] = t;
        }
    }
    public void bs(){
        System.out.println("Enter the element to be searched.");
        int x= sc.nextInt();
```

```
        int s=0,l=(a.length)-1,mid=l/2;
        while(s<=l){
            if(a[mid]>x){
                l = mid-1;
            }
            else if(a[mid]==x){
                System.out.println("Item found at loc: "+mid);
                break;
            }
            else{
                s=mid+1;
            }
            mid = (s+l)/2;
        }
        if(s>l){
            System.out.println("The element not found");
        }
    }
}

class BinarySearch {
    public static void main(String args[]){
        BSearchOprn b = new BSearchOprn();
        b.create();
        b.bs();
    }
}
OUTPUT:
Enter the Sorted Array Element
1
2
3
4
5
Enter the element to be searched.
3
Item found at loc: 2

Q5)
class UniqueNumber{
    public void unique(){
        int a=0;
        for(int i=1;i<=4;i++){
            for(int j=1;j<=4;j++){
                for(int k=1;k<=4;k++){
                    if(k!=i && k!=j &&i!=j){
                        System.out.println(i+""+j+""+k);
                        a++;
                    }
                }
            }
        }
        System.out.println("The total number of unique numbers are:"+a);
    }
}

class UniqueNumberMain {
```

```
    public static void main(String[] args) {
        UniqueNumber u = new UniqueNumber();
        u.unique();
    }
}
```

OUTPUT:

```
123
124
132
134
142
143
213
214
231
234
241
243
312
314
321
324
341
342
412
413
421
423
431
432
The total number of unique numbers are:24
```