Solution of Assignment 4

Question 1.

```
import java.util.*;

class Q1
{
	public static void main(String[] args)
	{
		Scanner sc = new Scanner(System.in);
		System.out.println("Enter first number: ");
		int fNumber = sc.nextInt();
		System.out.println("Enter second number: ");
		int sNumber = sc.nextInt();
		System.out.println("Enter third number: ");
		int tNumber = sc.nextInt();
		int sum = 0;
		for(int i = fNumber; i<=sNumber; i+=tNumber)
		{
			System.out.print(i+" ");
			sum += i;
		}
		System.out.print("\nThe sum of number displayed is "+sum);
	}
}
```

Question 2.

```
import java.util.*;

class Q2
{
	public static void main(String[] args)
	{
		Scanner sc = new Scanner(System.in);
		System.out.println("Enter a number: ");
		int n = sc.nextInt();
```

```
		int n1=n;
		int sum = 0;
		while(n!=0)
		{
			int rem = n%10;
			sum +=rem;
			n = n/10;
		}
		if(sum%9==0)
		{
			System.out.print("The number "+n1+" is divisible by 9");
		}
		else
		{
			System.out.print("The number "+n1+" is not divisible by 9");
		}
	}
}
```

Question 3.

```
import java.util.*;

class Q3
{
	public static void main(String[] args)
	{
		Scanner sc = new Scanner(System.in);
		System.out.println("Enter a number: ");
		int n = sc.nextInt();
		int sum = 0;
		System.out.print("Random numbers generated are: ");
		for(int i = 1; i<=n; i++)
		{
			int no = (int)(Math.random()*n)+1;
			System.out.print(no+" ");
			sum += no;
		}
		double avg = (int)sum/n;
```

```
                System.out.print("\nAverage of 6 random numbers are "+avg);
        }
}
```

Question 4.

```
import java.util.*;

class Q4
{
        public static void main(String[] args)
        {
                Scanner sc = new Scanner(System.in);
                System.out.println("Enter first number: ");
                int fNumber = sc.nextInt();
                System.out.println("Enter second number: ");
                int sNumber = sc.nextInt();
                int n1 = fNumber, n2 = sNumber;
                int temp;
                while(n1%n2!=0)
                {
                        temp = n1%n2;
                        n1 = n2;
                        n2 = temp;
                }
                System.out.print(“GCD of “+fNumber+” and “+sNumber+”  is ”+n2);
        }
}
```

Alternative Solution

```
import java.util.*;

class Q4
{
        public static void main(String[] args)
        {
                Scanner sc = new Scanner(System.in);
                System.out.println("Enter first number: ");
```

```
		int fNumber = sc.nextInt();
		System.out.println("Enter second number: ");
		int sNumber = sc.nextInt();
		int n1 = fNumber, n2 = sNumber;
		int temp;
		while(n1!=n2)
		{
			if(n1>n2)
				n1 = n1 - n2;
			else
				n2 = n2 - n1;
		}
		System.out.print(“GCD of “+fNumber+” and “+sNumber+”  is ”+ n2);
	}
}
```

Question 5.

```
import java.util.*;

class Q5
{
	public static void main(String[] args)
	{
		Scanner sc = new Scanner(System.in);
		System.out.println("Enter a number: ");
		int n = sc.nextInt();
		int sum = 0;
		for(int i =1;i<n;i++)
		{
			if(n%i==0)
			{
				sum +=i;
			}
		}
		if(sum==n)
		{
			System.out.print(n+" is a perfect number");
		}
```

```
                else
                {
                        System.out.print(n+" is not a perfect number");
                }
        }
}
```

Question 6.

```
import java.util.*;

class Q6
{
        public static void main(String[] args)
        {
                Scanner sc = new Scanner(System.in);
                System.out.println("Enter the base: ");
                int base = sc.nextInt();
                System.out.println("Enter the power: ");
                int pow = sc.nextInt();
                int power = 1;
                for(int i =1;i<=pow;i++)
                {
                        power *= base;
                }
                System.out.print(base+" to the power "+pow+" is "+power);
        }
}
```

Question 7.

```
import java.util.*;

class Q7
{
        public static void main(String[] args)
        {
                Scanner sc = new Scanner(System.in);
```

```
		System.out.println("Enter a no. for which you want to find the multiplication
table: ");
		int n = sc.nextInt();
		System.out.println("The multiplication table of "+n+" is: ");
		for(int i =1;i<=10;i++)
		{
			System.out.println(n+" x "+i+" = "+(n*i));
		}
	}
}
```

Question 8.

```
import java.util.*;

class Q8
{
	public static void main(String[] args)
	{
		Scanner sc = new Scanner(System.in);
		int max=10, min=1, comp, user;
		while(true)
		{
			comp = (int)(Math.random()*(max-min+1))+min;
			System.out.println("Enter your guess (between 1 to 10): ");
			user = sc.nextInt();
			System.out.println("Computer guess: "+comp);
			System.out.println("Your guess: "+user);
			if(user==comp)
			{
				System.out.println("Good guess");
				break;
			}
			else if(user>comp)
			{
				System.out.println("Too high, try again");
			}
			else
			{
```

```
                        System.out.println("Too high, try again");
                    }
                }
            }
}
```

Question 9.

```
import java.util.*;

class Q9
{
    public static void main(String[] args)
    {
        Scanner sc = new Scanner(System.in);
        System.out.println("Enter first number: ");
        int no = sc.nextInt();
        Int n = no;
        String s = "";
        while(no!=0)
        {
            int rem = no%10;
            if(rem!=0)
            {
                s = rem + s;
            }
            no = no/10;
        }
        System.out.print(“After removing 0 from number “+n+”, the new number is
“+s);
    }
}
```

Alternative Solution

```
import java.util.*;

class Q9
{
```

```
	public static void main(String[] args)
	{
		Scanner sc = new Scanner(System.in);
		System.out.println("Enter first number: ");
		int no = sc.nextInt();
		int n = no;
		int result = 0, count = 0;
		while(no!=0)
		{
			int rem = no%10;
			if(rem!=0)
			{
				result = (int)Math.pow(10,count)*rem +result;
				count++;
			}
			no = no/10;
		}
	System.out.print(result);
	}
}
```

Question 10.

```
import java.util.*;

class Q10
 {
	public static void main(String[] args)
	{
		Scanner sc = new Scanner(System.in);
		System.out.println("Enter the number: ");
		int n = sc.nextInt();
		int i = 0;
		while(true)
		{
			if(Math.pow(3,i)>n)
			{
				i = i-1;
				break;
```

```
                }
                i++;
        }
        System.out.println("The largest power of 3 less than or equal to "+n+" is
"+(int)Math.pow(3,i));
    }
}
```

Home Assignment

Question 1.

```
class Ass_Q1
{
    public static void main(String[] args)
    {
        int sum = 0, square_sum = 0;
        System.out.println("The sum of the squares of the first ten natural
numbers is: ");
        for(int i = 1;i<=10;i++)
        {
            if(i==1)
                System.out.print(i+"^2");
            else
                System.out.print(" + "+i+"^2");
            square_sum += (int)Math.pow(i,2);
        }
        System.out.print(" = "+square_sum);
        System.out.println("\nThe square of the sum of the first ten natural
numbers is: ");
        for(int i = 1;i<=10;i++)
        {
            if(i==1)
                System.out.print("("+i);
            else
                System.out.print(" + "+i);
            sum += i;
        }
        System.out.print(")^2 = "+sum+"^2 = "+(int)Math.pow(sum,2));
```

```
		System.out.print("Hence the difference between the sum of the squares of the first ten natural numbers and the square of the sum is "+(int)Math.pow(sum,2)+" - "+square_sum+" = "+((int)Math.pow(sum,2)-square_sum));
	}
}
```

Question 2.

```
class Ass_Q2
{
	public static void main(String[] args)
	{
		int sum = 0;
		for(int i = 1;i<1000;i++)
		{
			if(i%3==0||i%5==0)
			sum += i;
		}
		System.out.println("Sum of all the multiples of 3 or 5 below 1000 is "+sum);
	}
}
```

Question 3.

```
class Ass_Q3
{
	public static void main(String[] args)
	{
		int i = 1000;
		while(i<=2000)
		{
			System.out.print(i+" ");
			if(++i%5==0)
			{
				System.out.println();
			}
		}
	}
```

```
}
```

Question 4.

```
import java.util.*;

class Ass_Q4
{
	public static void main(String[] args)
	{
		Scanner sc = new Scanner(System.in);
		 System.out.println("Enter the number : ");
		 int n = sc.nextInt();
		 System.out.print("Sum of all even numbers = ");
		 int sum = 0, produce =1;
		 for(int i = 1;i<=n;i++)
		 {
			if(i%2==0)
			{
				if(i==2)
					System.out.print(i);
				else
					System.out.print(" + "+i);
				sum += i;
			}
		 }
		System.out.print(" = "+sum);
		System.out.print("\nProduct of all odd numbers = ");
		for(int i = 1;i<=n;i++)
		{
			if(i%2==1)
			{
				if(i==1)
					System.out.print(i);
				else
					System.out.print(" * "+i);
				produce *= i;
			}
		}
```

```
                System.out.print(" = "+produce);
        }
}
```

Question 5.

```
import java.util.*;

class Ass_Q5
{
        public static void main(String[] args)
        {
                Scanner sc = new Scanner(System.in);
                System.out.println("Enter the number of lines: ");
                int n = sc.nextInt();
                String S="";
                for(int i =1;i<=n;i++)
                {
                        S = S + i + S;
                        System.out.println(S);
                }
        }
}
```