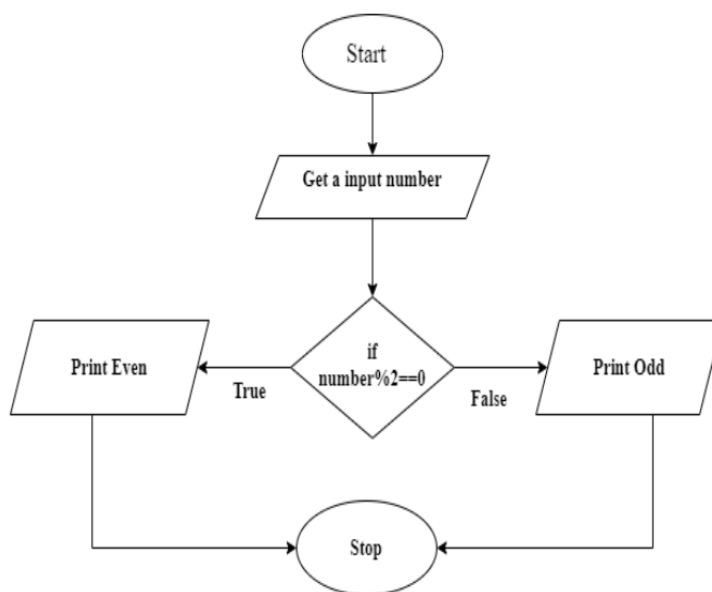# Assignment 1

Q.1) Check no is even or odd.

Ans:- Algorithm-

1) Start

2) Get a input number

3) Check whether it is odd or even using num%2==0

4) If true, print even number. Else, print odd number

5) Stop

Flowchart:-

Program :

```
        import java.util.Scanner;
class EvenOdd{
public static void main(String[] args){
Scanner sc=new Scanner(System.in);
System.out.println("enter number");
int num=sc.nextInt();

if(num%2==0){
System.out.println("even number");
}
```

else{

System.out.println("odd number");

}}}

Output:

C:\Users\amol magar\Documents\cdac Juhu prepatory\day1>javac EvenOdd.java

C:\Users\amol magar\Documents\cdac Juhu prepatory\day1>java EvenOdd

enter number

6

:even number

enter number

3

:odd number

Q.2) Factorial of given number.

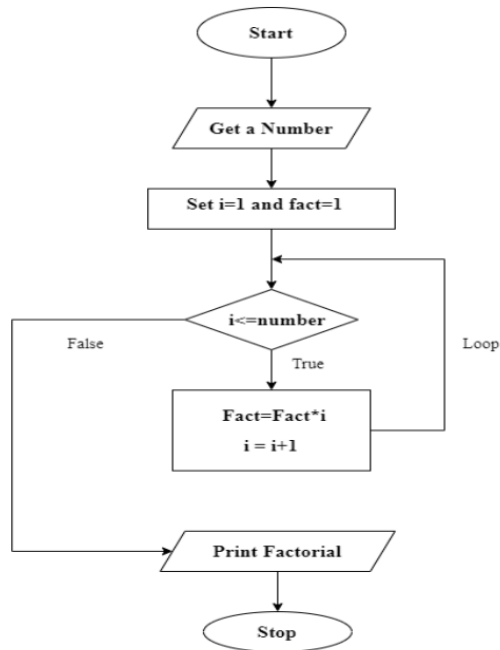Ans- Algorithm:-

1) Start

2) Declare variable num, fact=1, i=1

3) Get a input number

4) Repeat until i<=num Fact=fact*i i++

5) Print factorial

6) Stop

Flowchart:-

Q.3) Factorial using recursion

Ans: Algorithm

1) Start

2) Declare varible fact=1

3) Get a number from user

4) Call method facto(number) recursively until value of number>1

5) Print factorial

6) Stop
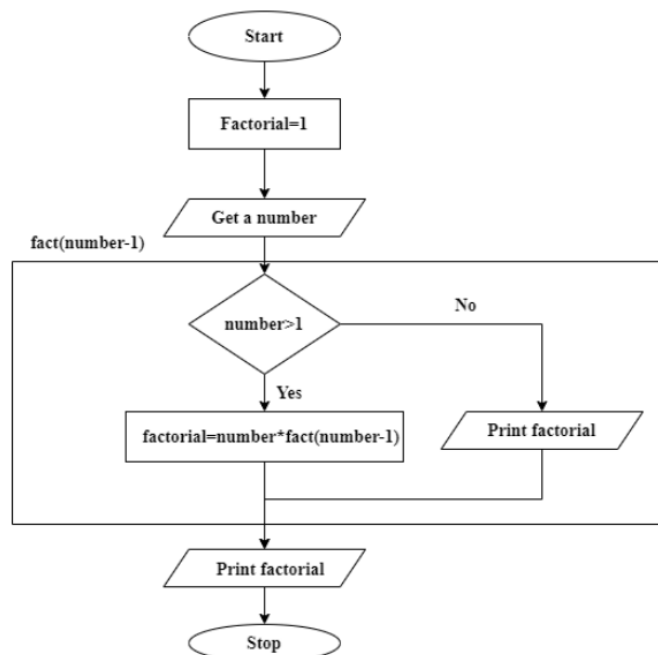
Flowchart:

Q.4) Swap two numbers without using third variable.

Ans: Algorithm:-

1) Start

2) Get two numbers num1,num2

3) Print unswap numbers Num1=num1+num2 Num2=num1-num2
Num1=num1-num2

4) Print swap numbers

5) Stop

Flowchart:
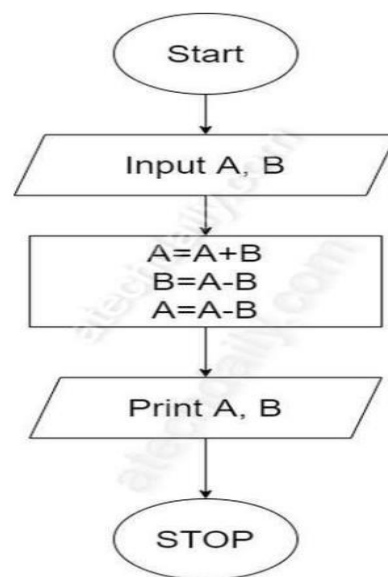
Q.5) Check given numbers whether it is positive or negative

Ans: Algorithm:

1) Stop

2) Get a number

3) Check number%2==0 If true, print positive Else print negative

4) Stop

Flowchart:

```
                    Start

                  Get Integer

                                    No
              If Number  ──────────────────  Print Negative
                > 0

                 Yes

              Print Positive

                    Stop
```
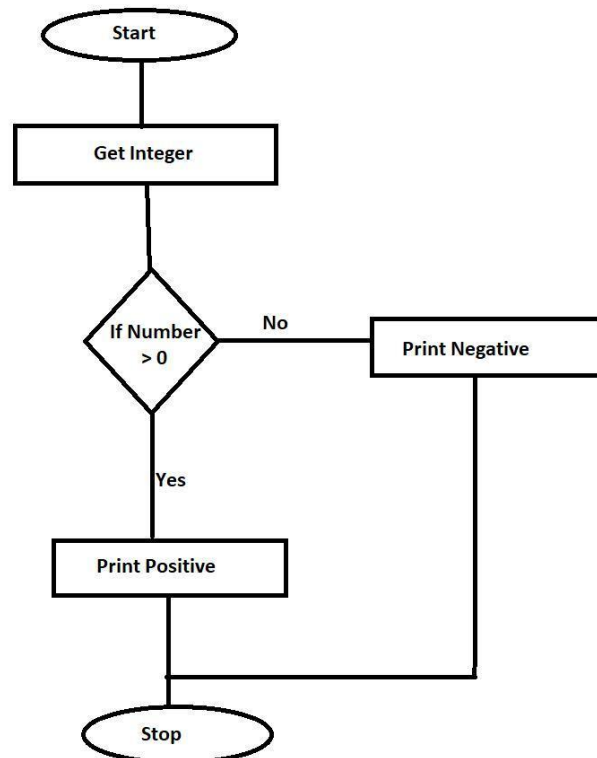
Q.6) Leap year Ans:

Algorithm:-

1. Start

2. Get a input year

3. Check year divible by 4, if true go to step

4. else Go to step 7 4. Check year divisible by 100, if true go to step 5, else go to step 6

5. Check year divisible by 400, if true go to step 6, else go to step 7

 6. Print leap year

7. Print not leap year 8. Stop

Flowchart:
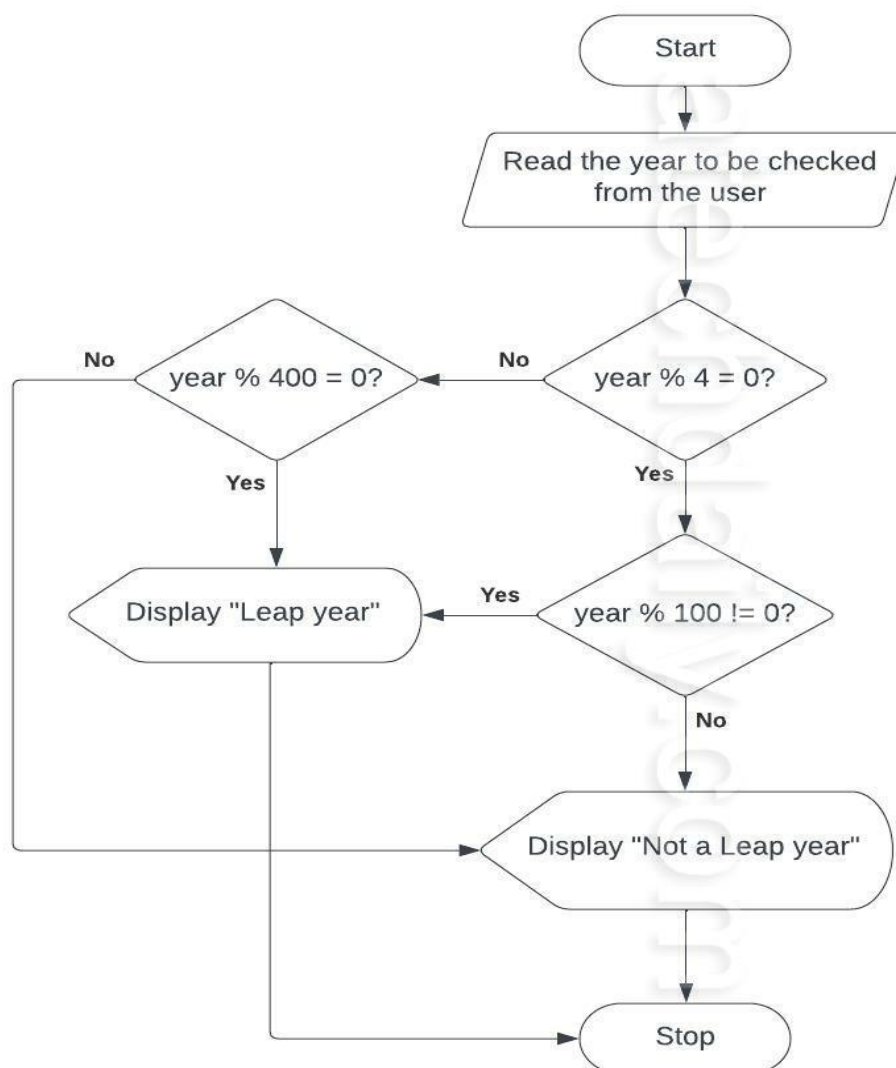
Q.7) Print 1 to 10 without loop

Ans: Algorithm:-

1. Start

2. Call print metho

3. Define i=1 . Check i<=10 if true print i and do i=i+1, else exit

4. Stop

Flowchart:-

Flowchart

```
                  Start
                    │
                    ▼
          ┌───────────────────┐
          │      i = 1         │
          └───────────────────┘
                    │
                    ▼
                   ( )
                    │
                    ▼
               ◇ i≤10? ◇ ──── No ──→ ( Stop )
                    │
                   Yes
                    │
                    ▼
              / Print i /
                    │
                    ▼
          ┌───────────────────┐
          │    i = i + 1      │
          └───────────────────┘
```
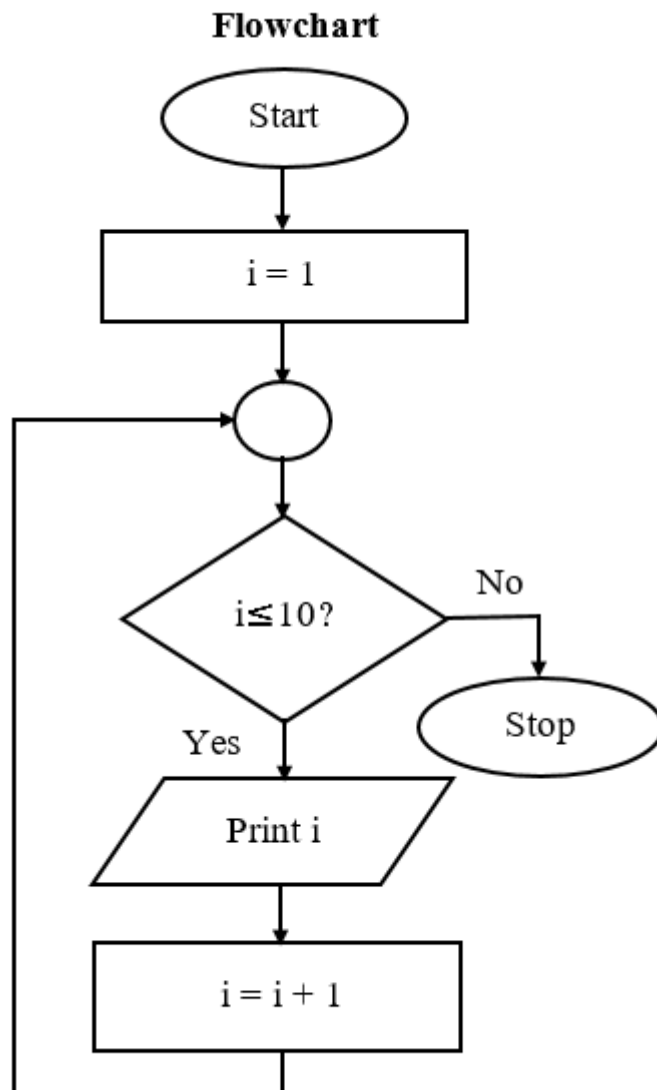
Q.8) Print the digit of given number.

Ans: Algorithm

1) Start

2) Get a number

3) Print the the value of number%10

4) Number=number/10;

5) Repeat step 3 to 4 until number is not equal to zero

6) Stop

Flowchart:-

```
              ┌─────────────┐
              │    Start    │
              └──────┬──────┘
                     │
              ┌──────▼──────┐
             /  Get a number  /
              └──────┬──────┘
                     │
                  ◇ while
      ┌──────────◇ number==0 ◇──── false ───► ( Stop )
      │           ◇       ◇
      │              │ true
      │           /  print number%10  /
      │              │
      │       ┌──────▼──────────┐
      └───────┤ number=number/10 │
              └─────────────────┘
```
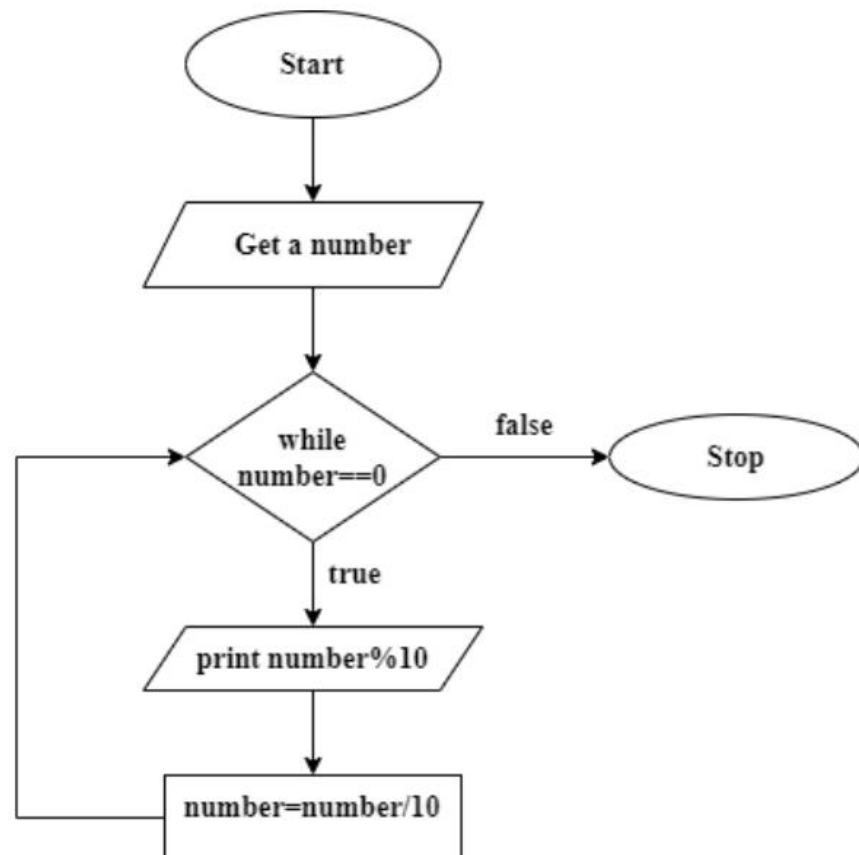
Q.9) Factor of given number Ans: Algorithm:

1) Start

2) Get a number

3) Declare i=1

4) Check number%i==0 if true print i and increment the valur of i

5) Repeat step 4 until i<=number
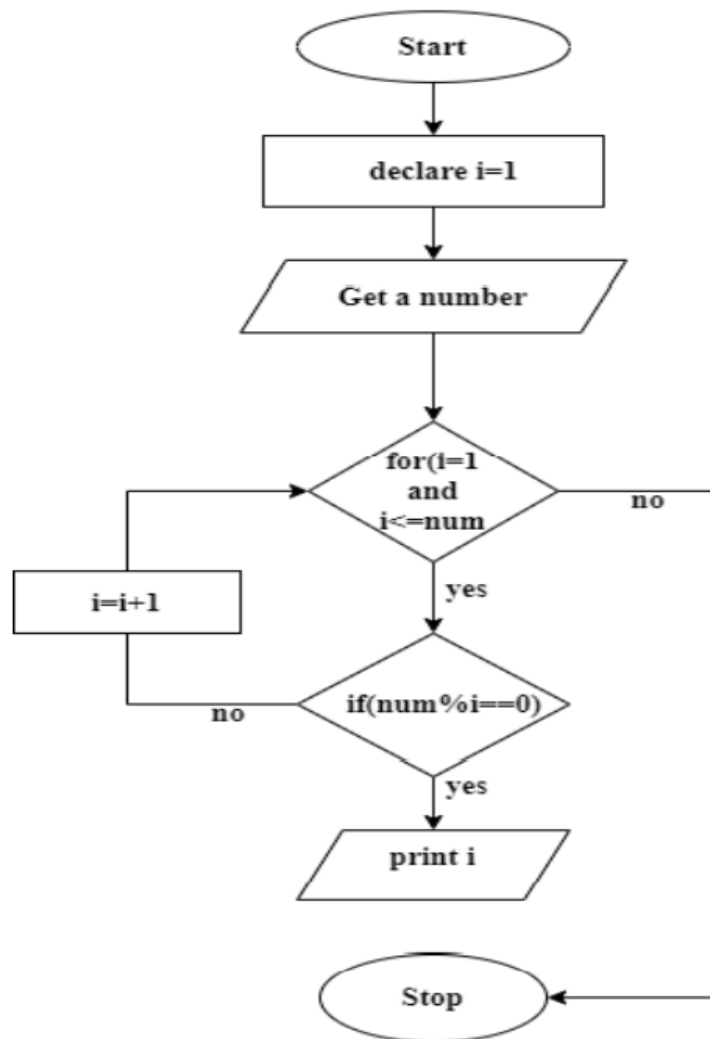
6) Stop

Flowchart:-

Q.10) Sum of digit of given number

Ans: Algorithm:-

1) Start

2) Get a number

3) Set sum=1

4) While(number!=0) Sum=sum+(number%10) Num=num/10

5) Print sum

6) Stop

Flowchart:
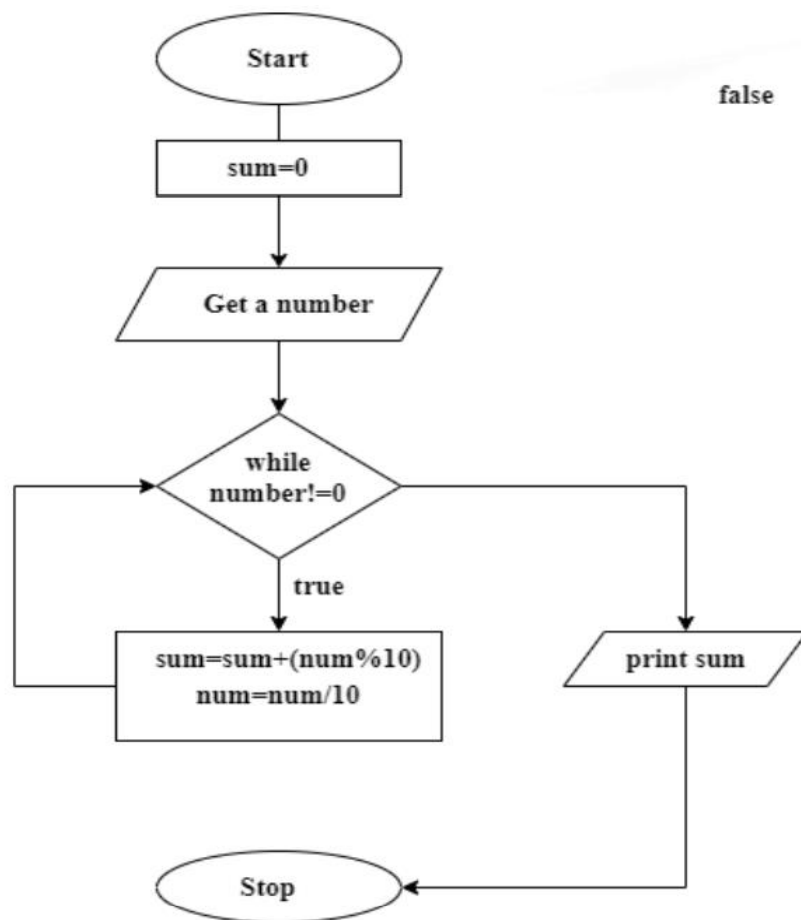
Q.11) Smallest of three numbers

Ans: Algorithm:-

1. Start

2. Get three numbers from user

3. Check if a<b and a<c, if true print a and exit else go to step 4

4. Check if b<a and b<c, if true print b and exit else go to step 5

5. print c

6.stop

Flowchart:-

Q.12) Addition without arithmetic operator

 Ans: Algorithm:-

1. Start

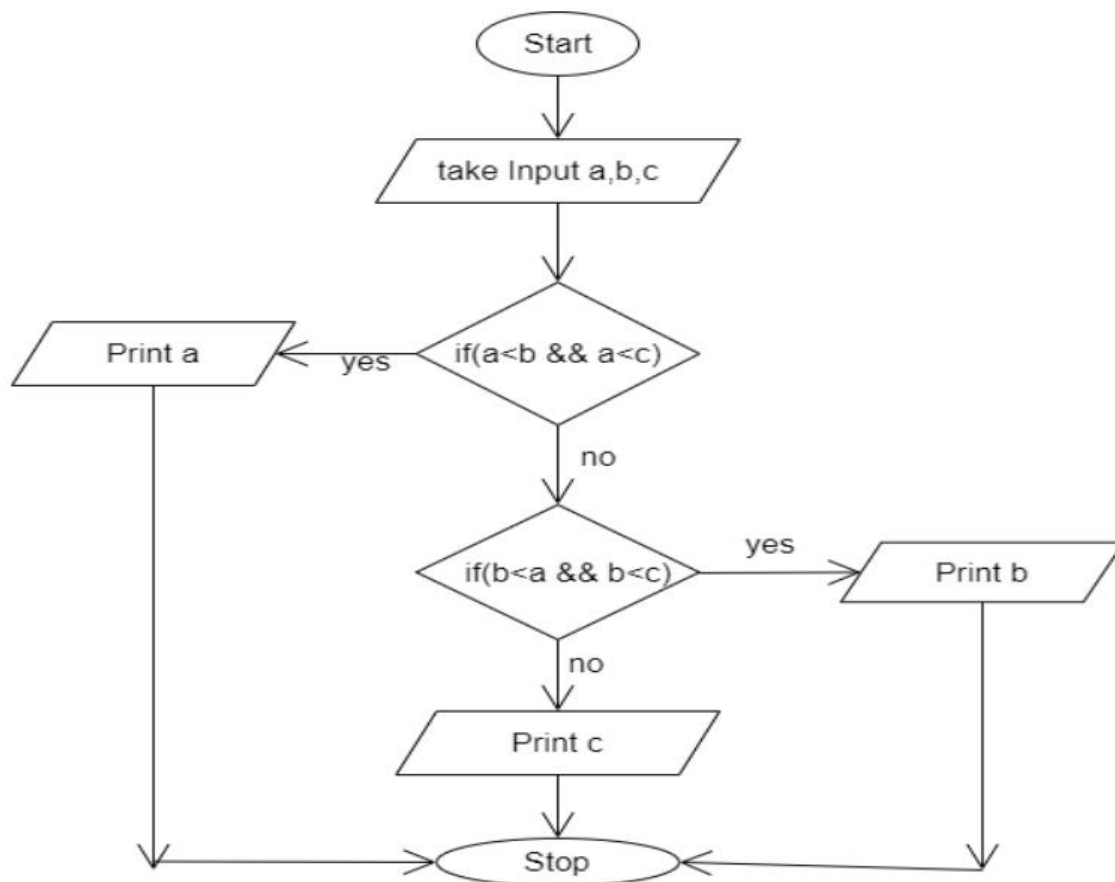2. Get two number

3. Call addNum(num1,num2) method

4. For(i=1;i<=num2;i++) a. Num1++

5. Print Sum

6. Stop

Flowchart:-

```
                        ┌─────────────┐
                        │    Start    │
                        └──────┬──────┘
                               │
                               ▼
                      ╱─────────────────╲
                     │  Get two numbers  │
                     │   num1,num2       │
                      ╲─────────────────╱
                               │
                               ▼
                      ┌─────────────────┐
                      │     Set i=1     │
                      └────────┬────────┘
                               │
                               ▼
              ┌──►    ◇ while(i<=num2) ◇ ──►  ┌──────────────┐
              │              │                 │  Print Sum   │
         ┌────┴───┐          │                 └──────┬───────┘
         │  i++   │          │                        │
         └────┬───┘          ▼                        ▼
              │       ┌──────────────┐          ╱───────────╲
              └───────│    num++     │         │    Stop     │
                      └──────────────┘          ╲───────────╱
```
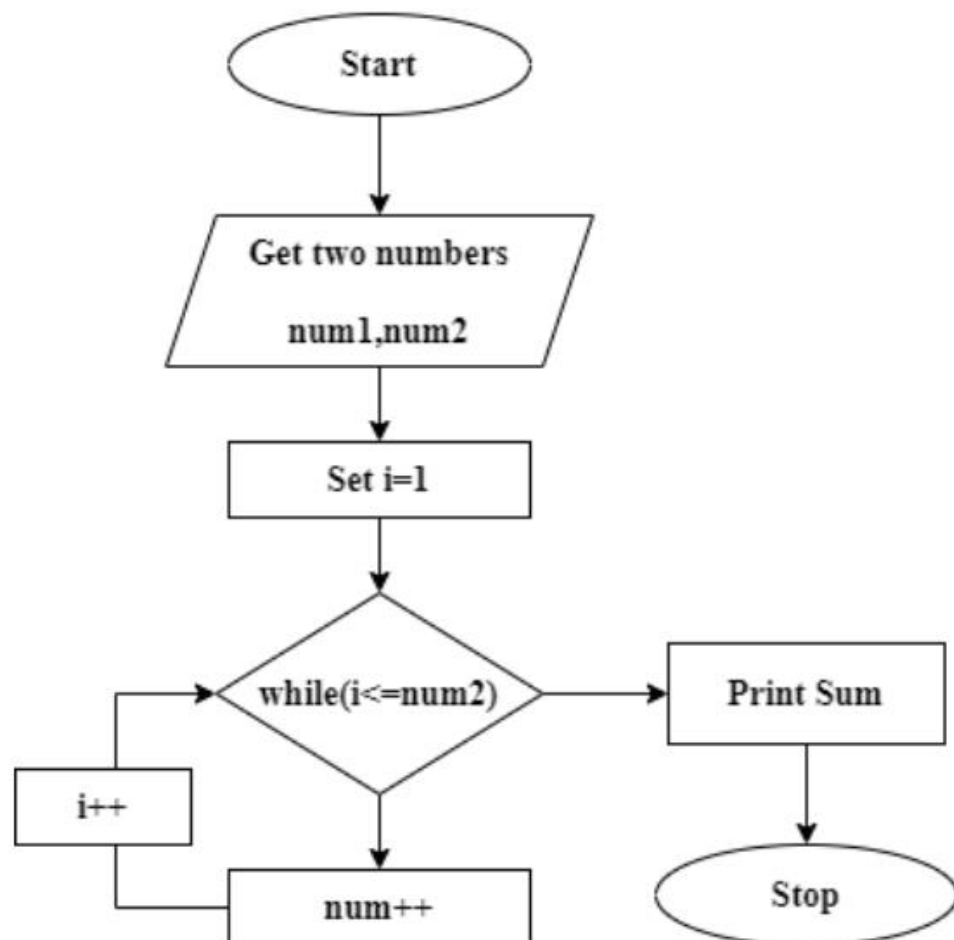
Q.13) Reverse a given number

Ans: Algorithm:

1) Start

2) Get a number

3) Set rem=0, rev=0

4) While(number!=0) a. int rem = num % 10 b. rev = rev * 10 + rem

c. num = num / 10

5) Print rev

6) Stop Flowchart:-

```
                    ┌──────────┐
                    │  Start   │
                    └──────────┘
                          │
                          ▼
                 ┌─────────────────┐
                 │  rev=0,rem=0    │
                 └─────────────────┘
                          │
                          ▼
                 ╱─────────────────╱
                ╱   Get a number  ╱
               ╱─────────────────╱
                          │
                          ▼
                      ◇ while           false
                 ◇ number!=0 ◇ ──────────────────┐
                      ◇                           │
                          │ true                  │
                          ▼                        ▼
            ┌──────────────────────┐      ╱──────────────╱
            │ int rem = num % 10;  │     ╱  print rev   ╱
            │ rev = rev * 10 + rem;│    ╱──────────────╱
            │ num = num / 10;      │           │
            └──────────────────────┘           │
                                               │
                    ┌──────────┐               │
                    │   Stop   │◄──────────────┘
                    └──────────┘
```
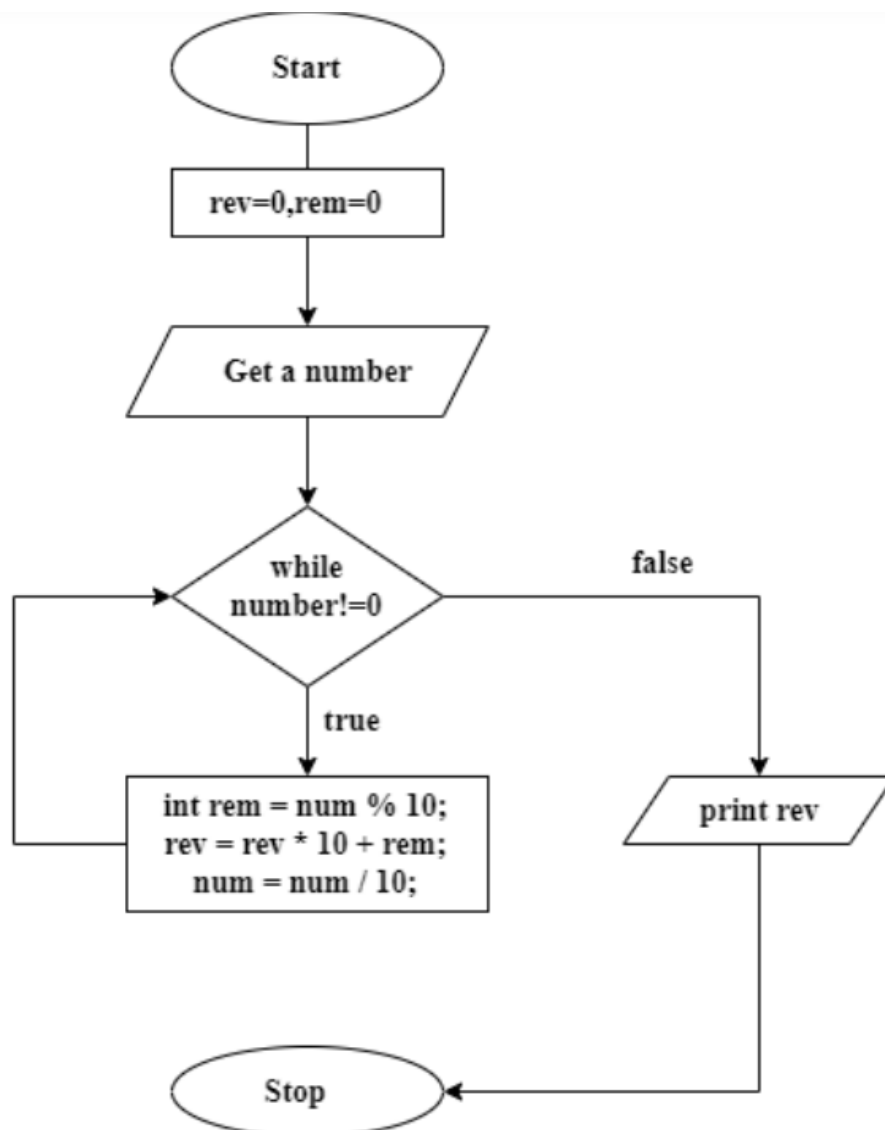
Q.14) GCD of two number

Ans: Algorithm:-

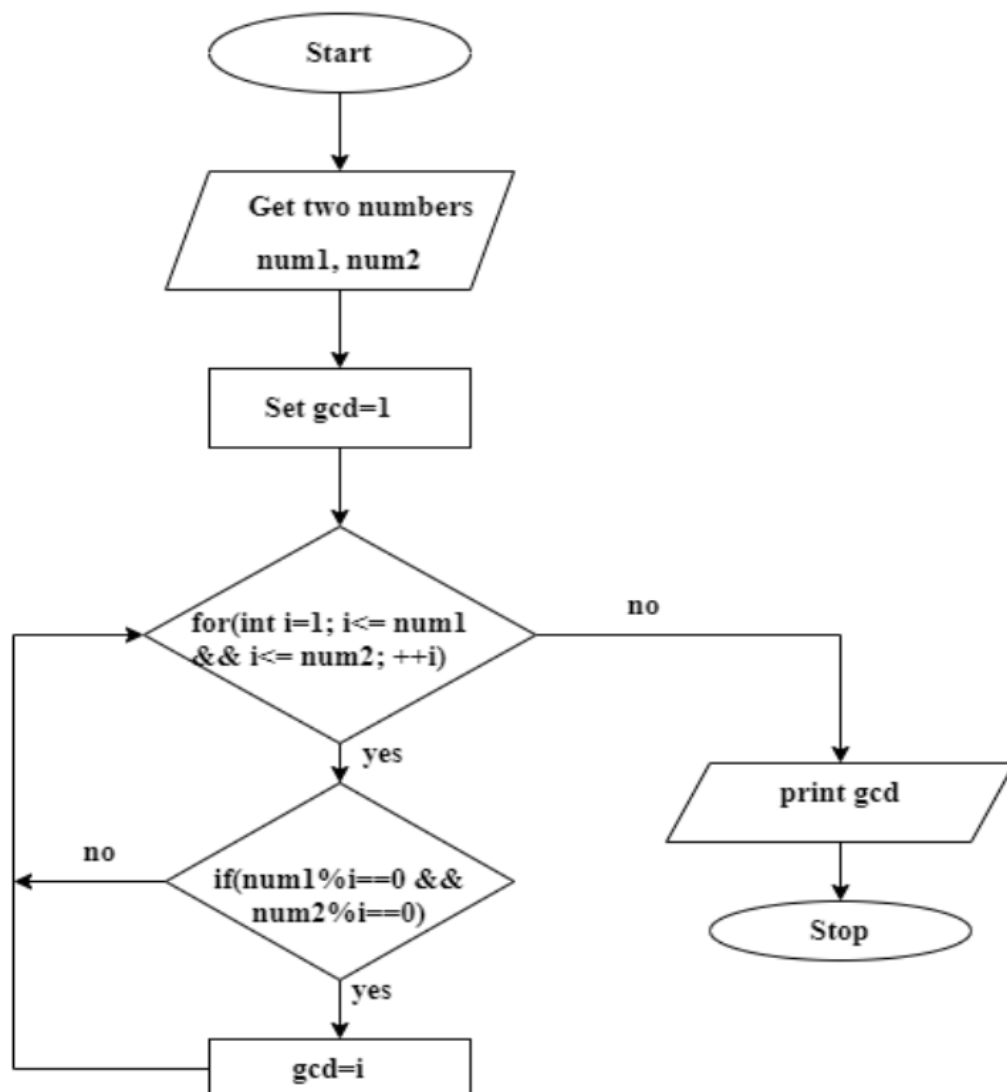1) Start

2) Get two number num1,num2

3) Set gcd=1

4) for(int i=1; i<= num1 && i<= num2; ++i) if(num1%i==0 && num2%i==0) set gcd=i

5) Print GCD

6) Stop

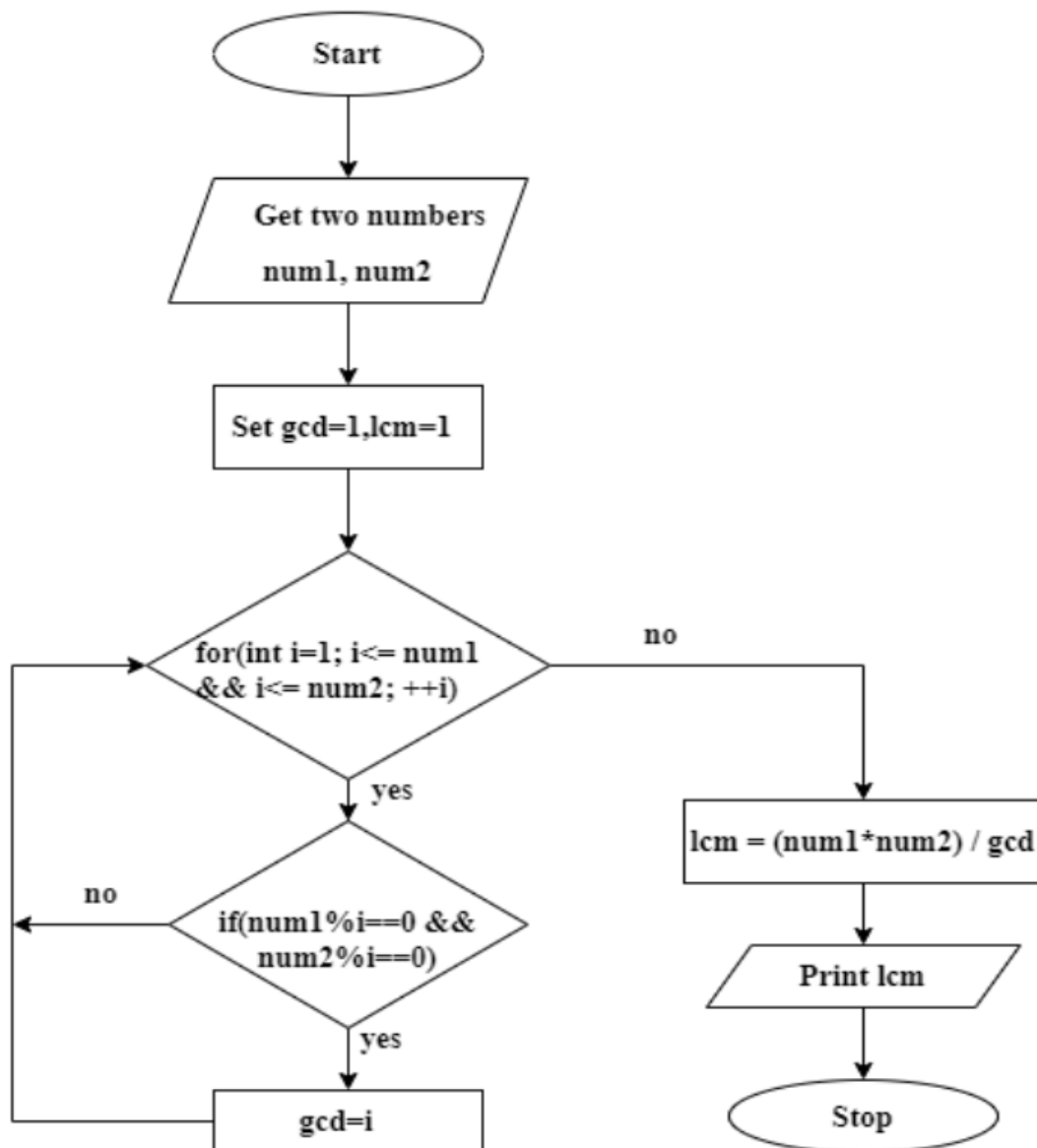Flowchart:-

Q.15) LCM of two numbers

Ans: Algorithm:-

1) Start

2) Get two number num1,num2

3) Set gcd=1

4) for(int i=1; i<= num1 && i<= num2; ++i) if(num1%i==0 && num2%i==0)

   set gcd=i

5) lcm=(num1*num2)/gcd

6) print LCM

7) Stop

Flowchart:-
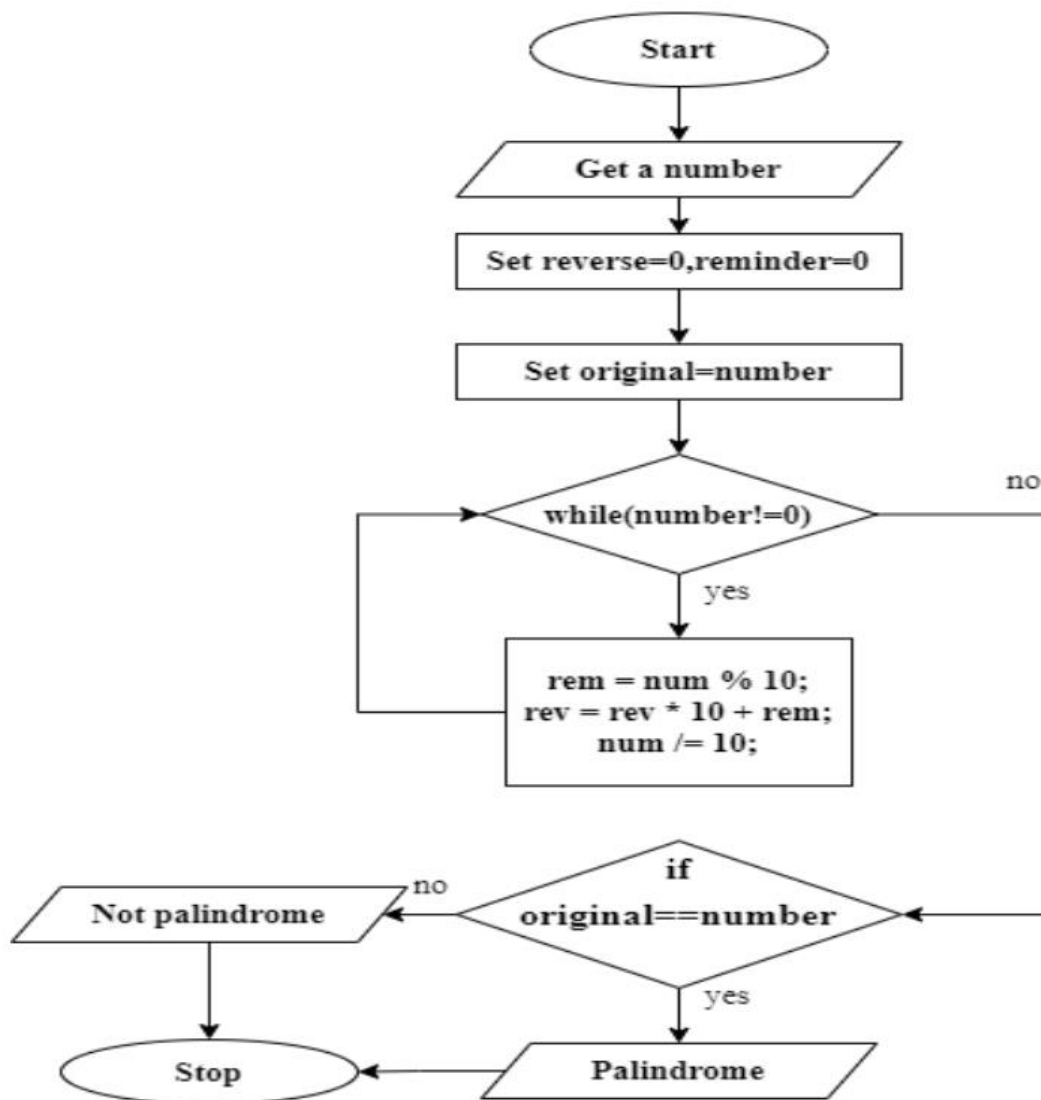
Q.17) Check Palindrome number or not.

Ans: Algorithm:-

1) Start

2) Get a number

3) Set reverse=0 and reminder=0

4) Set original=number

5) Check number!=0 if true go to 5 else goto 7

6) rem = num % 10; rev = rev * 10 + rem; num /= 10;

7) check if original==number if true print palindrome else print not palindrome
8) stop

Flowchart:
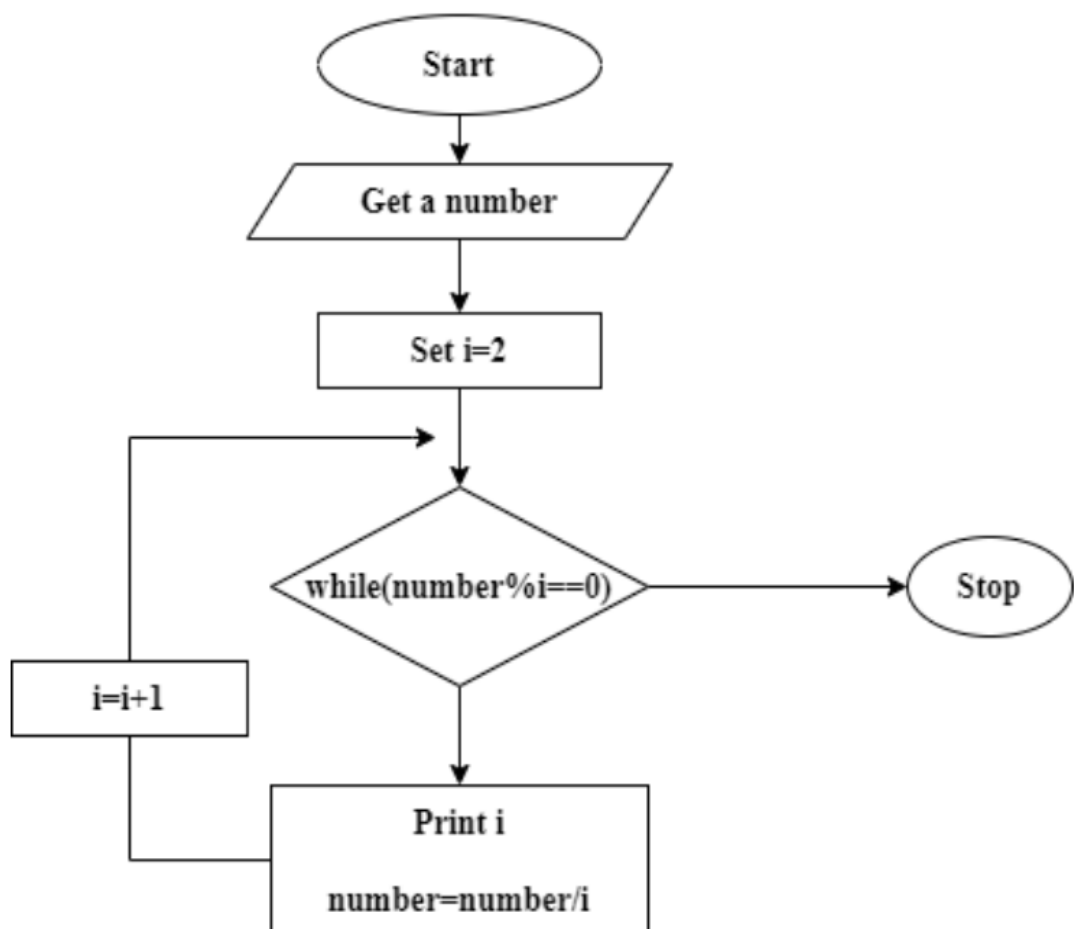
Q.18) Prime Factor of given number

Ans: Algorithm:-

1. Start

2. Enter the Number.

 3. Take i=2.

4. Check the Input Number is greater than Then enter in loop.

a. while(Number is greater than 1)

b. Check the condn if(Number%i==0)

c. if it is true enter in bracket.

d. print(i) value on terminal e. Number=Number/I else i++ then

loop will iteration again

5. Stop

Flowchart:

Q.19) Even series

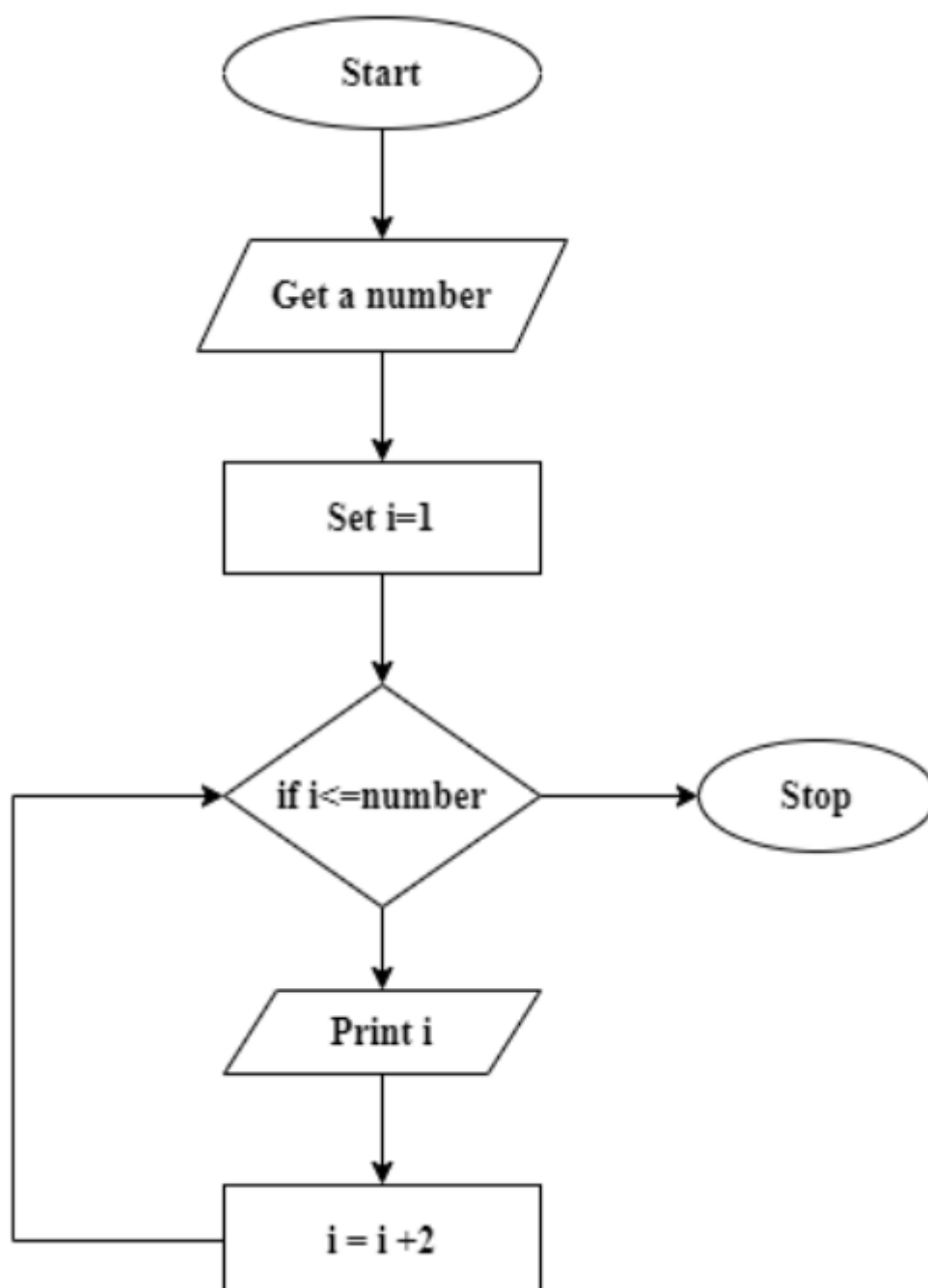Ans: Algorithm:-

1. Start

2. Get a number from user upto which they want to print even number

3. Set i=2

4. If i<=number, print i and i=i+2. Else go to step 6

5. Repeat step 4 until i<=number

6. Stop

Flowchart:-

Q.20) odd series

Ans: Algorithm:-

1. Start

2. Get a number from user upto which they want to print even number

3. Set i=1

4. If i<=number, print i and i=i+2. Else go to step 6

5. Repeat step 4 until i<=number

6. Stop

Flowchart:

```
                        ┌──────────────┐
                        │    Start     │
                        └──────┬───────┘
                               │
                               ▼
                      ╱─────────────────╲
                     ╱   Get a number    ╲
                     ╲───────────────────╱
                               │
                               ▼
                      ┌──────────────────┐
                      │     Set i=1      │
                      └────────┬─────────┘
                               │
                               ▼
                            ╱─────╲
          ┌───────────────▶ if i<=number ──────────▶  Stop
          │                 ╲─────╱
          │                    │
          │                    ▼
          │           ╱─────────────────╲
          │          ╱     Print i        ╲
          │          ╲───────────────────╱
          │                    │
          │                    ▼
          │           ┌──────────────────┐
          └───────────│     i = i +2     │
                      └──────────────────┘
```