Assignment - 1

Q.1) check the given no. is even or odd.

```
        ┌─────────┐
        │  start  │
        └────┬────┘
             │
       ╱─────────────╲
      │  input num    │
       ╲─────────────╱
             │
        ╱─────────╲         No
       ╱   if       ╲──────────────┐
      ╱  num % 2 == 0 ╲            │
       ╲─────────────╱            │
          │ Yes                    │
     ╱─────────────╲        ╱─────────────╲
    │  print even   │      │  print odd    │
     ╲─────────────╱        ╲─────────────╱
           │                      │
       ┌───────┐                  │
       │  end  │◄─────────────────┘
       └───────┘
```
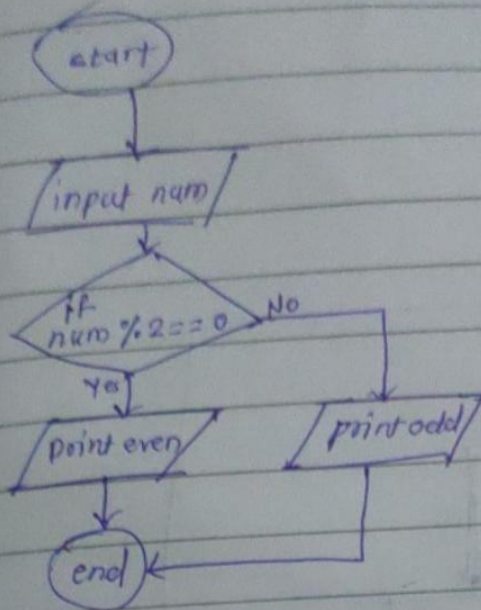
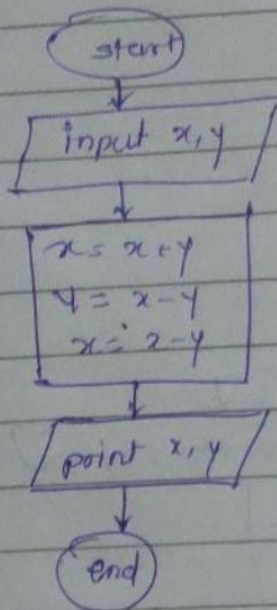**Q.2)** to. To find the factorial of given number.

```
        ┌─────────┐
        │  start  │
        └────┬────┘
             │
       ╱─────────────╲
      │  input num    │
       ╲─────────────╱
             │
      ┌──────────────┐
      │  assign i = 1 │
      │        f = 1  │
      └───────┬──────┘
              │
        ╱─────────╲
       ╱  i <= n   ╲──────────────┐
        ╲─────────╱               │
            │                     │
      ┌──────────┐         ╱─────────────╲
      │  f = i × f│        │   print f     │
      └─────┬────┘         ╲─────────────╱
            │                     │
      ┌──────────┐              ┌─────┐
      │  i = i+1 │              │ End │
      └─────┬────┘              └─────┘
            │
       ╱─────────╲
      │  print f  │
       ╲─────────╱
```
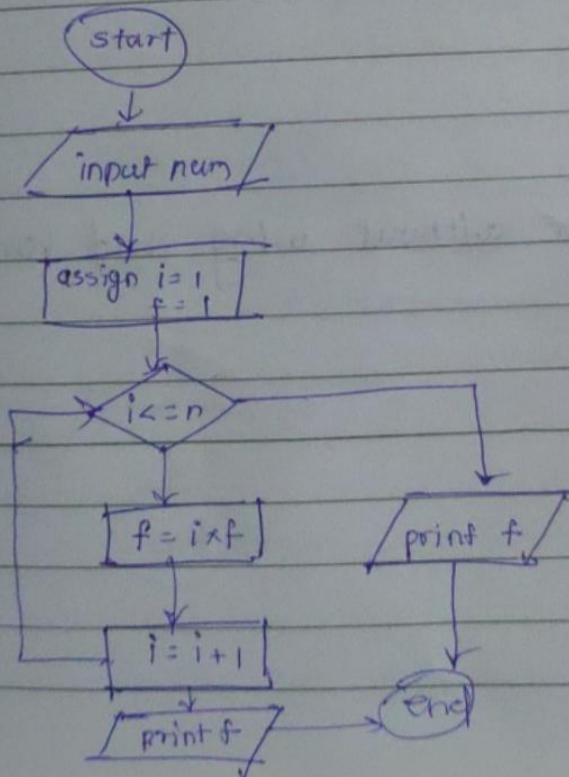
Que 3) Find factorial using recursion.

```
                    ┌─────────┐
                    │  start  │
                    └────┬────┘
                         │
                         ▼
                   ┌──────────┐
                   │ input n  │
                   └────┬─────┘
                         │
                         ▼
                   ┌──────────┐
                   │ fact(n)  │◄──────────────┐
                   └────┬─────┘               │
                         │                     │
                         ▼                     │
                    ◇ if n==0 ◇────────┐       │
                         │             │       │
                         ▼             ▼       │
                  ┌──────────┐     ┌───────┐   │
                  │ Return 1 │     │ int r │   │
                  └────┬─────┘     └───┬───┘   │
                       │               │       │
                       ▼               ▼       │
                 ┌────────────┐  ┌──────────────────┐
                 │ print result│  │ r=n*fact(n-1)    │
                 └─────┬──────┘  └──────────────────┘
                       │
                       ▼
                    ┌─────┐
                    │ end │
                    └─────┘
```

if $n == 0$

$r = n * fact(n-1)$
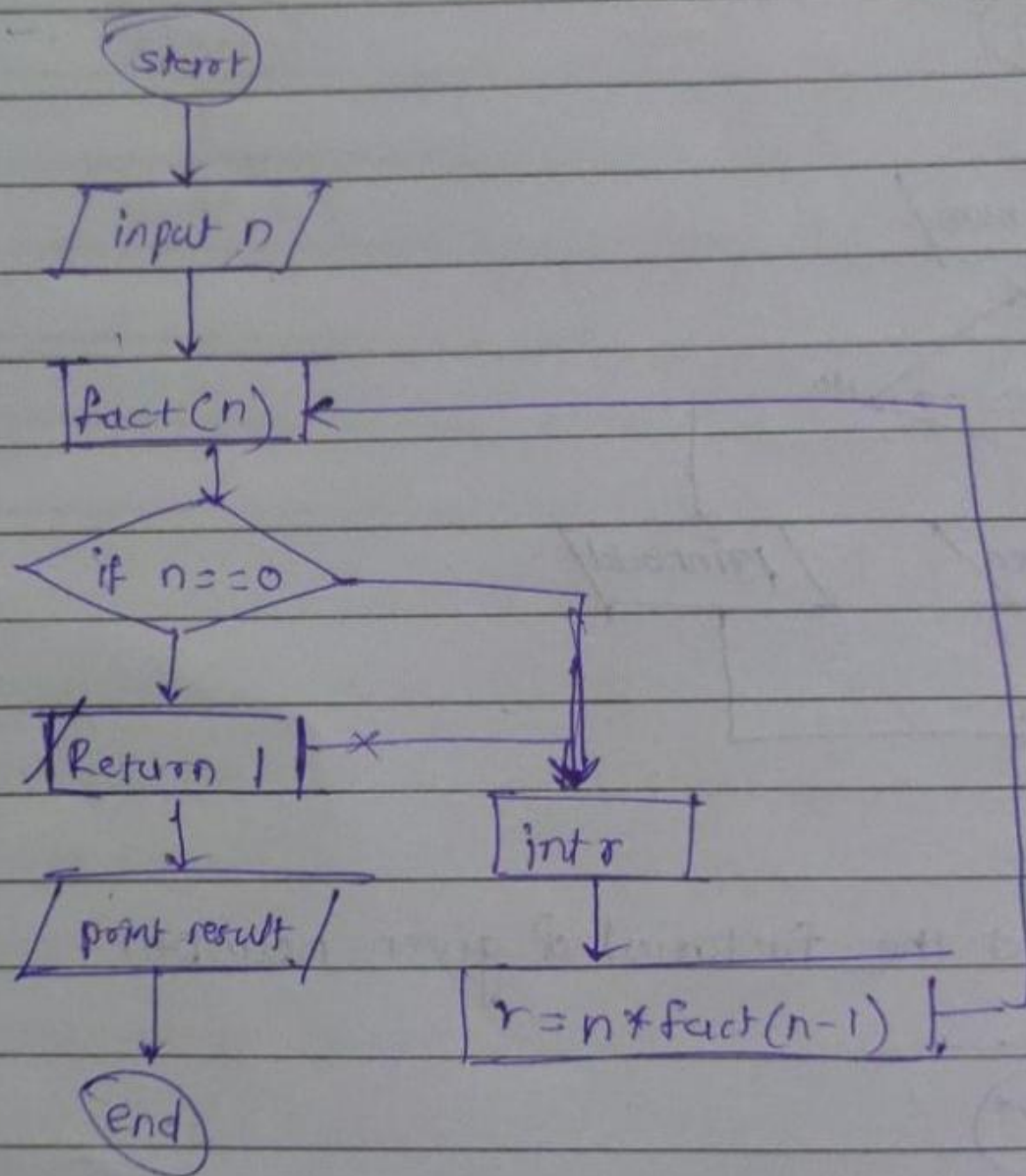
Que4 Swap two numbers without using third variable

start

input x, y

$x = x + y$
$y = x - y$
$x = x - y$

point x, y

end

Que5 check given no. is positive or negative.

start

input num

if n > 0   No

Yo

print positive   print negative

end
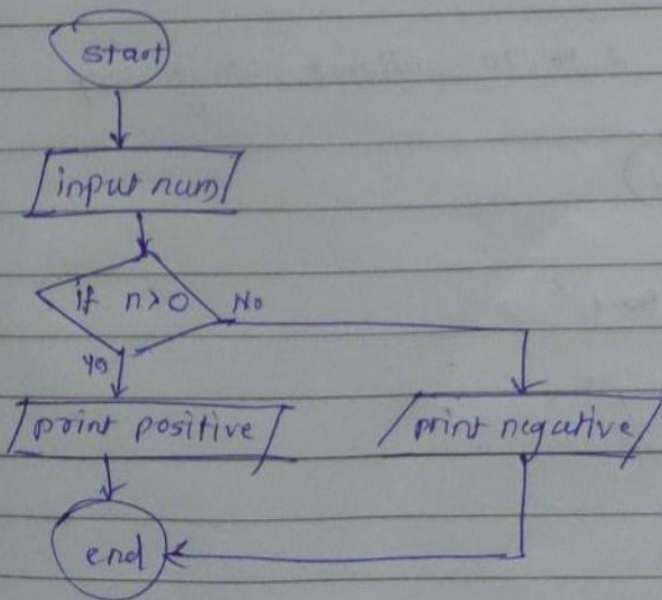
Que 6) Find weather given number is Leap year or Not

```
        ( Start )
            |
            v
      / input year /
            |
            v
          / if \
         /      \
        / year%4==0 \---------------------+
        \           /                     |
         \         /                      v
          \       /              / point Not leap year /
            |                            |
            v                            |
   / print leap year / <----- x ---------+
            |
            v
         ( end ) <-----------------------+
```
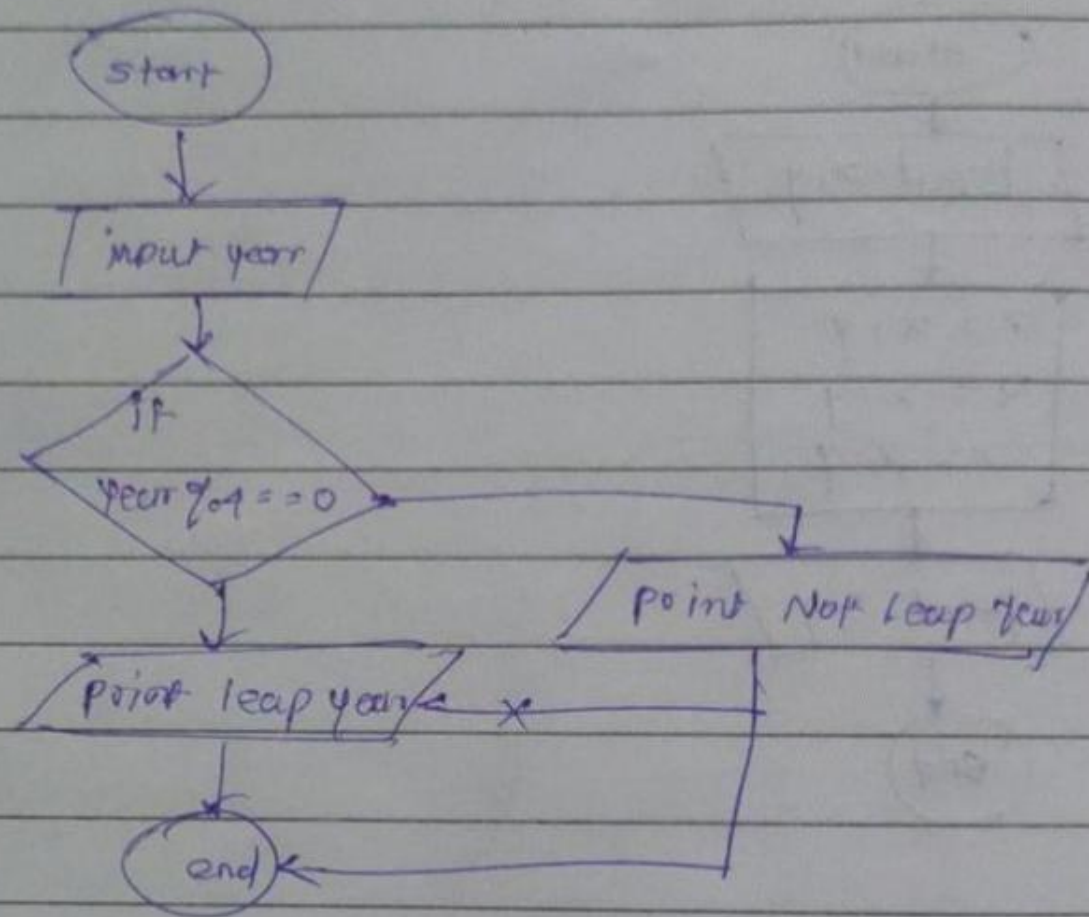
Que 7)

*To print 1 to 10 without Using loop.

```
         start

         print 1

         print 2

         print 3

         print 4

         point 5

         print 6

         point 7

         print 8

         point 9

         print 10

          end
```
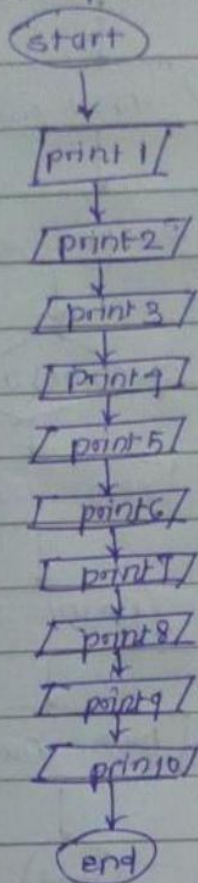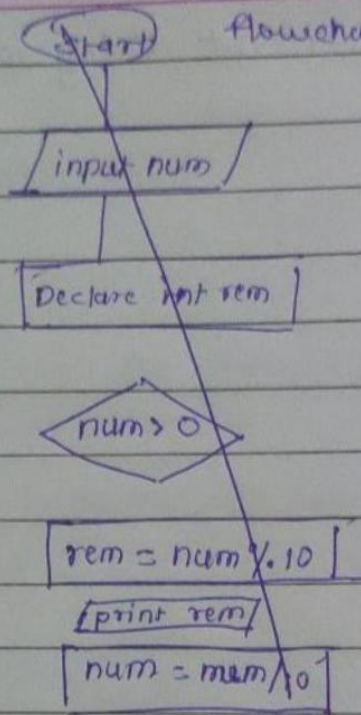
Que 8)   To print digits of given Number.

Algorithm
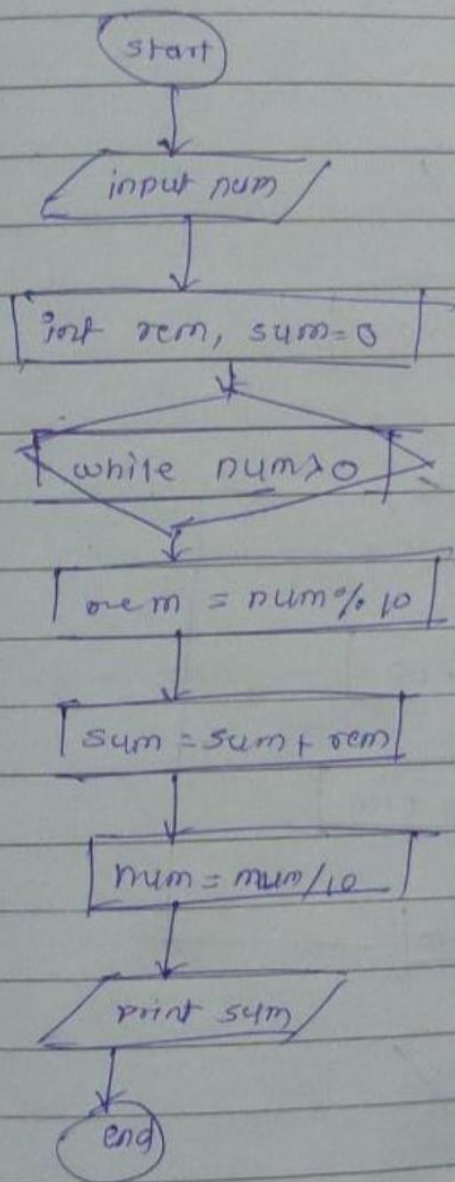
1) start

2) Get Number from User & store it in num.

3) Use while loop (num > 0)
    1) rem = num % 10
    2) print rem;
    3) num = num/10

4) End.

Que 8

Flowchart —

(start)

input num

Declare int rem

num > 0

rem = num % 10

print rem

num = num / 10

(start)

input num

Declare int rem

num > 0

rem = num % 10

print rem

num = num / 10

(end)
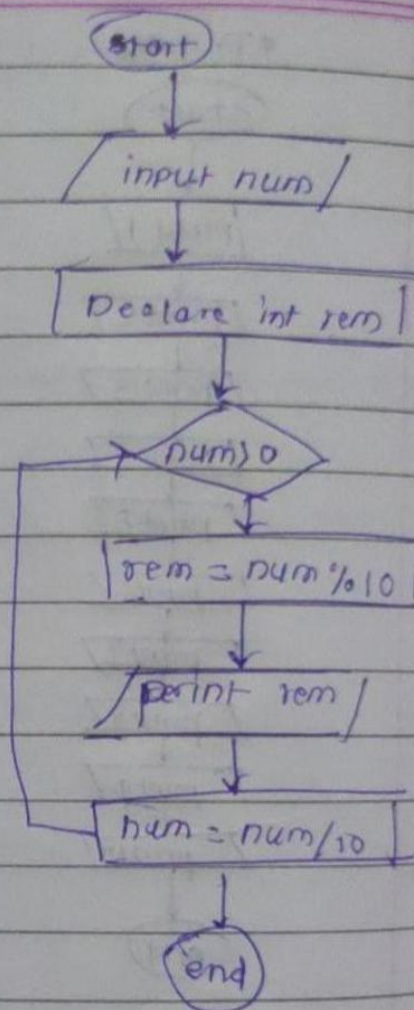
Que 10) write to find sum of digits of given No.

```
          ( start )
             |
             v
        / input num /
             |
             v
     [ int rem, sum=0 ]
             |
             v
       < while num>0 >
             |
             v
     [ rem = num % 10 ]
             |
             v
     [ sum = sum + rem ]
             |
             v
     [ num = num/10 ]
             |
             v
       / print sum /
             |
             v
          ( end )
```

Que ≠ 11) Find the smallest of 3 numbers

algorithm

1. start

2. Get the three number from user & store them
   &x int a, b, c;

3. compare the number using following loop.

   - if (n1 <= n2 && n1 <= n3)

     print (n1)

     else if (n2 <= n1 && n2 <= n3)

     print (n2)

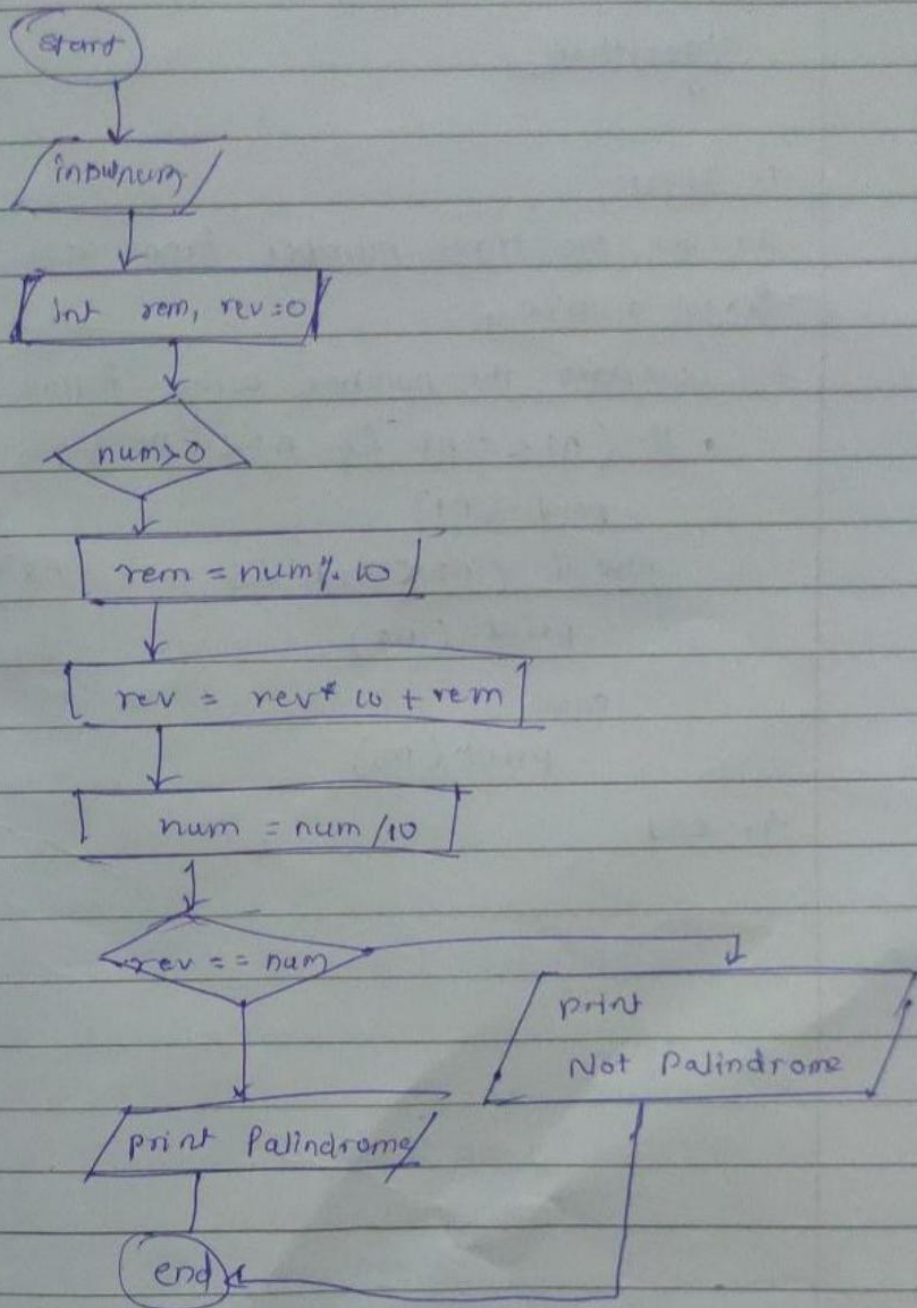   else

     print (n3)

4. end.

18) To reverse a number

```
        ( Start )
            |
            v
      / input num /
            |
            v
    ( int rem, rev=0 )
            |
            v
         / while  \
        <  num > 0  >----------+
         \         /           |
            |                  |
            v                  |
   [ rem = num% 10 ]           |
            |                  |
            v                  |
  [ rev = rev*10 + rem ]       |
            |                  |
            v                  |
    [ num = num/10 ]-----------+
            |
            v
      / print rev) /
            |
            v
        ( end )
```
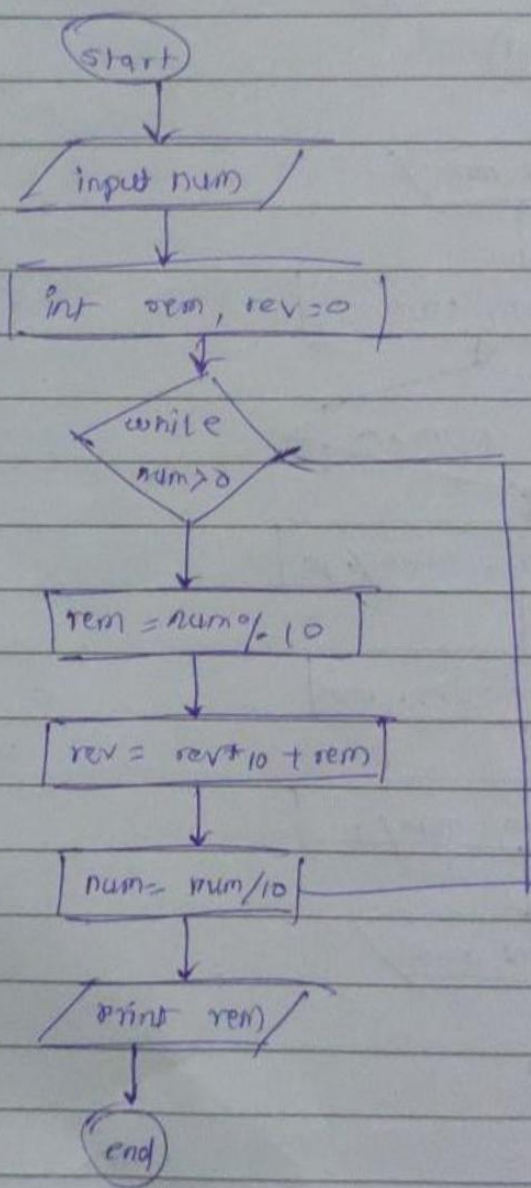
17) check wheether Given number is palindrome or Not

```
        ( Start )
            |
            v
       / input num /
            |
            v
     [ int rem, rev = 0 ]
            |
            v
        < num > 0 >
            |
            v
     / rem = num % 10 /
            |
            v
    [ rev = rev * 10 + rem ]
            |
            v
     [ num = num / 10 ]
            |
            v
        < rev == num > -------------> / print
            |                           Not Palindrome /
            v
   / print Palindrome /
            |
            v
         ( end )
```

Q. 19) To print Even numbers

Algorithm

1. START

2. Take a num number/count to print that much even numbers
   int num;

3. Declare & initialize a variable to zero.
   int sum=0;

4. Apply for loop using condition as follow.
   for(int i=2; i < num; i++)

5. Use condition sum=sum+2;

6. Print sum for each loop

7. STOP.

Q. 20) To print the Odd Number series.

Algorithm

1. START

2. Take a count to print that much odd numbers
   int count;

3. Declare & initialize a variable to zero;
   int sum=1;

4. Apply for loop using following conditions

5. Use condition sum=sum for (int i=1; i<count; i++)

6. Use sum = sum+2; & print sum for each loop.

7. STOP