Date __/__/____

Assignment 1

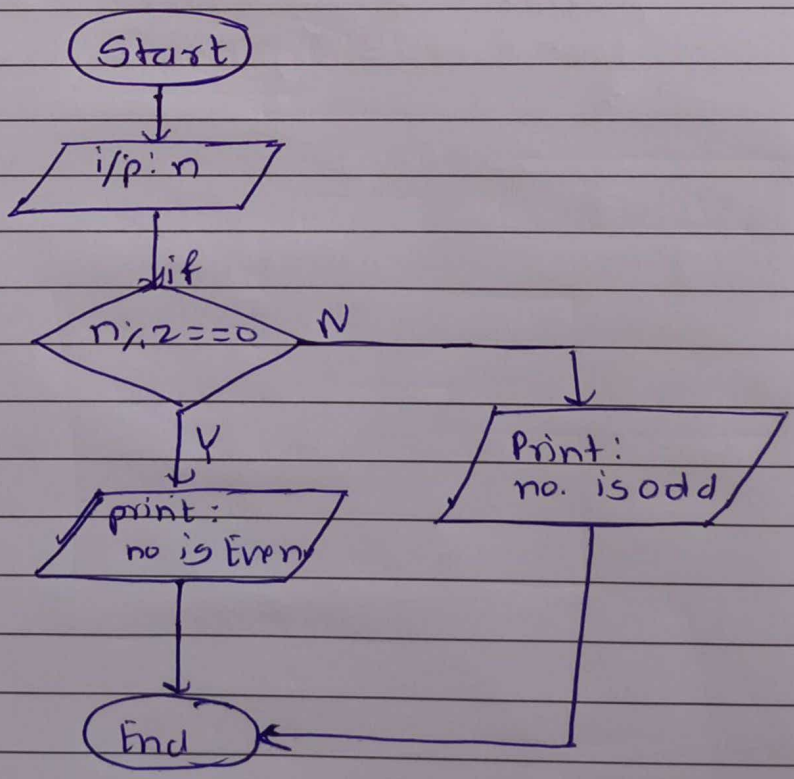
Q. 1) Algorithm and flowchart to check if no. is even or odd.

→

1) Algorithm:-

1) Start
2) Take i/p no.
3) check if no. is divisible by 2
4) If yes then Even
5) If no then odd
6) End

2) Flow chart:-



Date __/__/____

Saathi

Q.2. Write an algorithm and flowchart to find factorial of given no.

→

1) Algorithm:- i) start

2) Take i/p no.

3) If no = 0, Print fact of 0 is 0

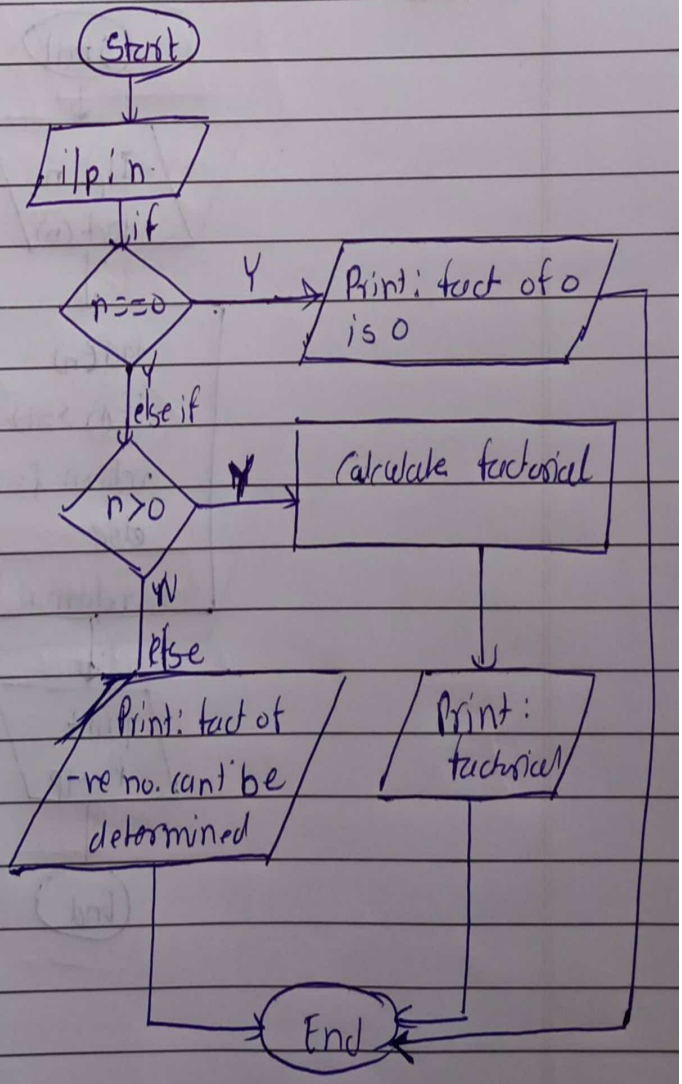
4) If no > 0, Go to step 5 else go to step 6

5) Calculate factorial using fact = fact * i

6) Print factorial of -ve no. can't be defined.

7) End.

2) Flowchart:-



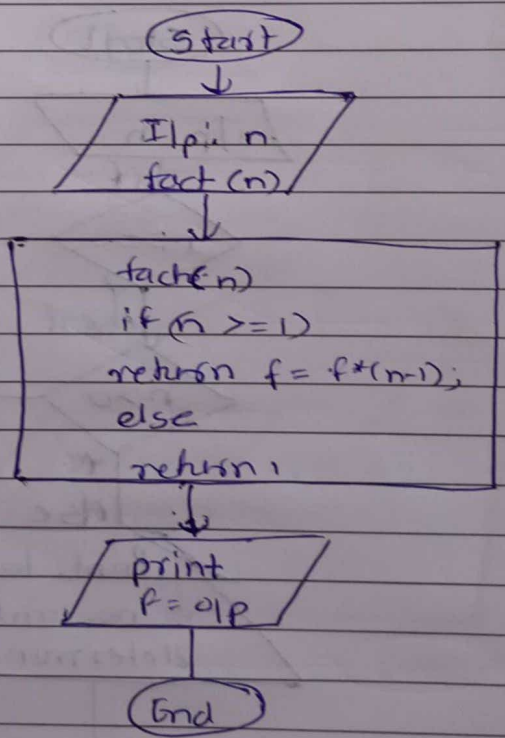
Saathi

Date ___/___/_____

Q.3) Find factorial of a no. using Recursion :-

→ 1) Algorithm :- 1) Start
2) I/p : n, fact = 1 3) call fact method
4) check condition if i <= n
5) fact = fact * (n-1)
6) End. o/p : print fact
7) End

Flowchart :-



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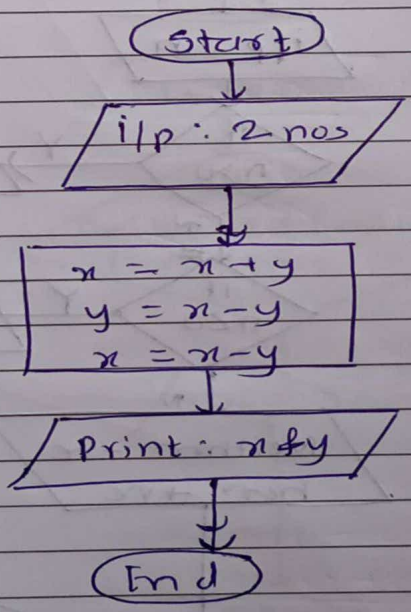
Saathi

Q4. Swap two no. without using the third variable approach.

→ 1) Algorithm :- 1) Start
2) Take i/p 2 nos.
3) $x = x + y$
$y = x - y$
$x = x - y$
4) Print x and y
5) End

2) Flowchart :-



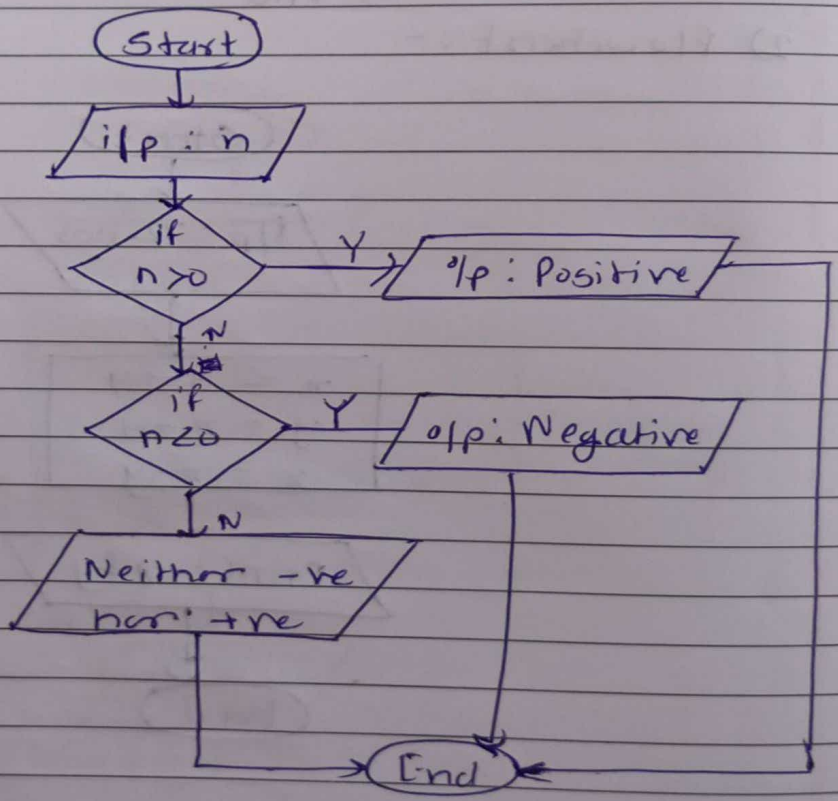
Saathi

Date ___/___/_____

Q.5. How to check whether the given no. is positive or negative in java.

→ 1) Algorithm:- 1) Start
2) I/p : number
3) if n>0 - positive
4) if n<0 - negative
5) if n=0 - Neither -ve nor +ve.
6) End

2) Flowchart:



Date ___/___/_____

Saathi

Q.6 - Write a program to find whether a given year is leap year or not.

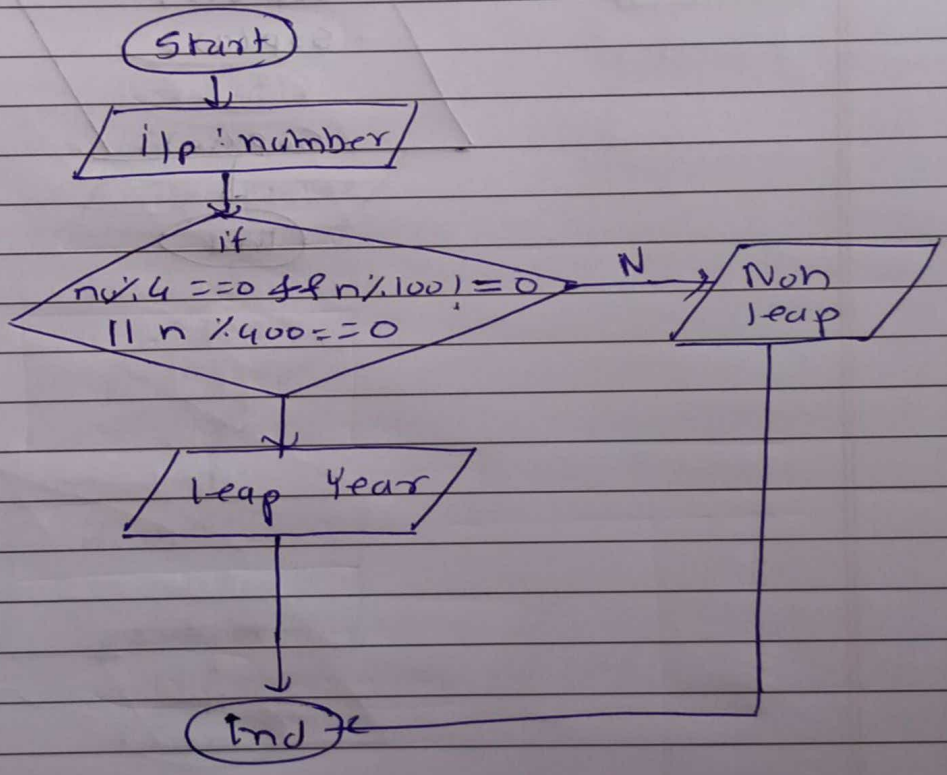
→ Algorithm: 1) Start

2) i/p: Number

3) If (number is divisible by 4 and not divisible by 100 or divisible by 400 ⇒ Leap year otherwise Non leap.

4) End

Flowchart:-



Saathi

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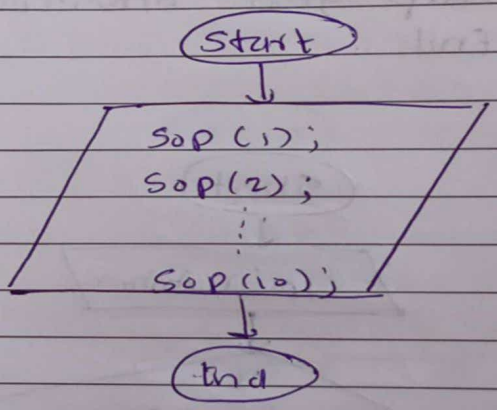
Q.7. Write a java program to print 1 to 10 without using loop

→ Algorithm:- 1) Start
2) Print 1 to 10 using SOP

Flowchart:-



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Saathi

Q. Write a java program to print the digits of given no.

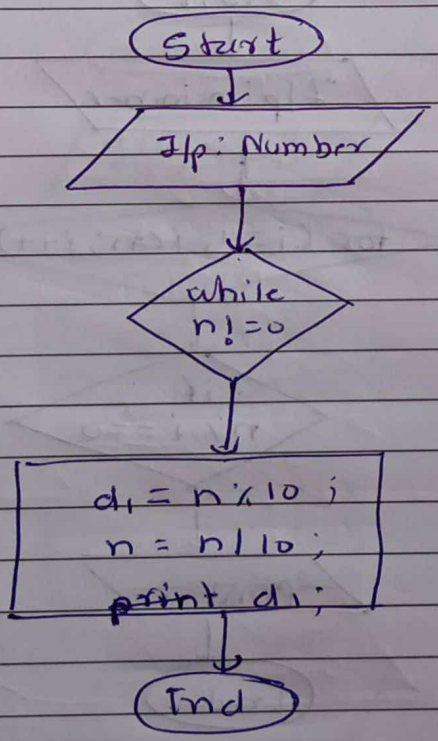
→ Algorithm:- 1) Start

2) Ip: number

3) while n!=0 - $d_1 = n \% 10$;
$n = n / 10$;
print d_1;

4) End

Flowchart:-



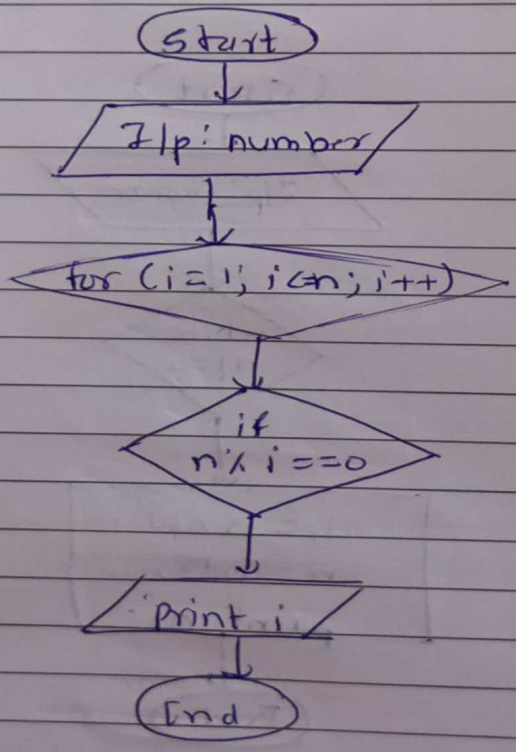
Saathi

Date ___/___/_____

Q-9 Write a program to print all the factors of given number

→ Algorithm:- 1) Start
2) ~~for~~ I/p : number n
3) for i=1 to n
if n is divisible by i then
print i
4) End.

Flowchart:-



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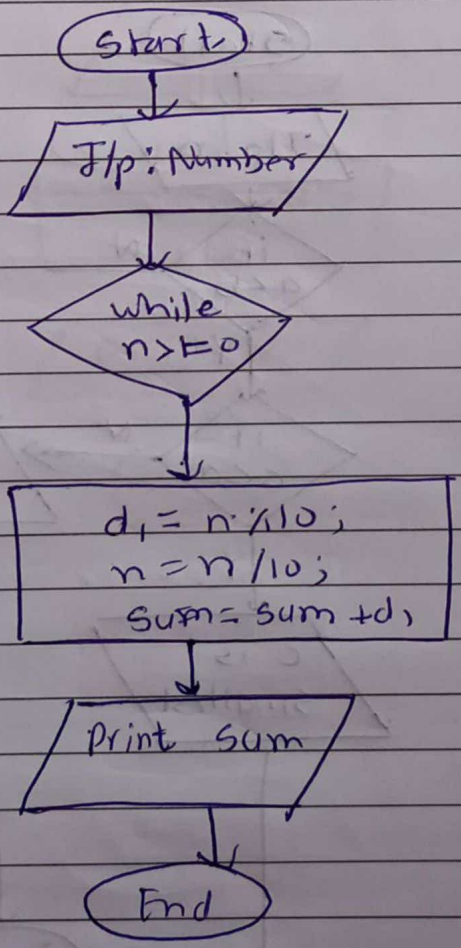
Saathi

Q. 10 ~~Write~~ Program to find sum of digits of given number.

→ Algorithm:-

1) Start
2) I/p: Number
3) while num >= 0,
   d_1 = num % 10, num = num / 10,
   sum = sum + d_1
4) print sum.
5) End.

2) Flowchart:-



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Saathi

Q 11 Write a java program to find the smallest of 3 numbers (a, b, c)

→ Algorithms:- 1) Start

2) Ilp : Number

3) ~~If~~ a<b ;

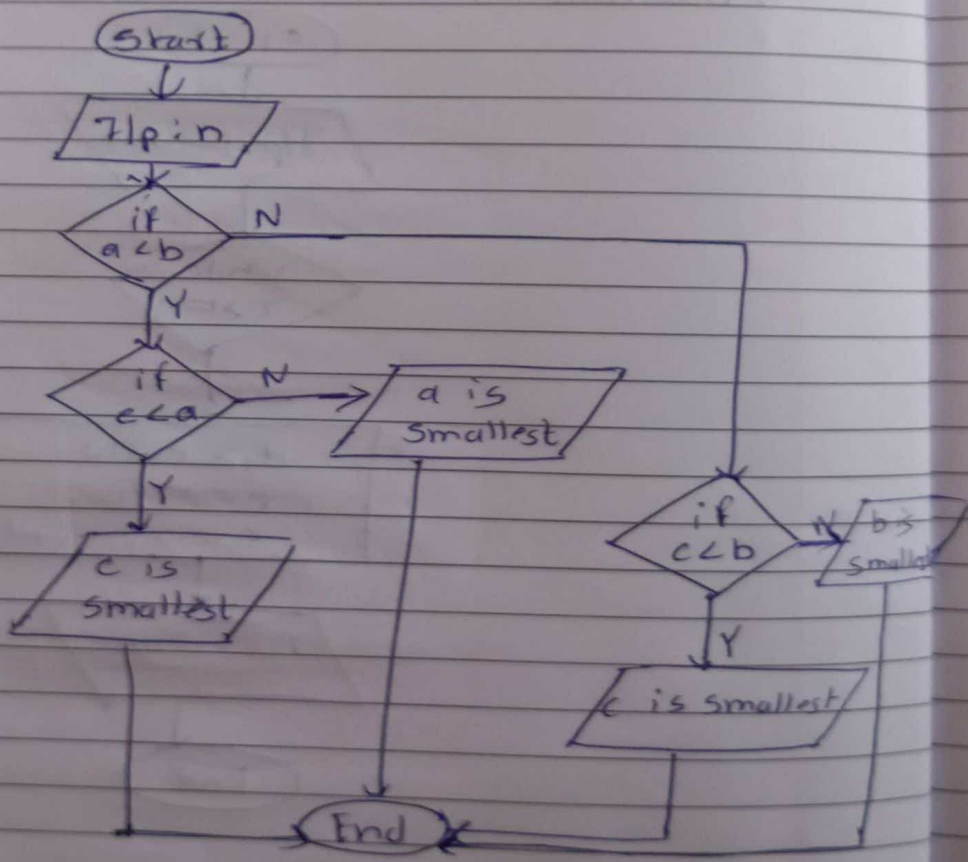
if c<a — Y — c is smallest

otherwise — a is smallest

4) If c<b — b is smallest

otherwise c is smallest.

Flowchart:-



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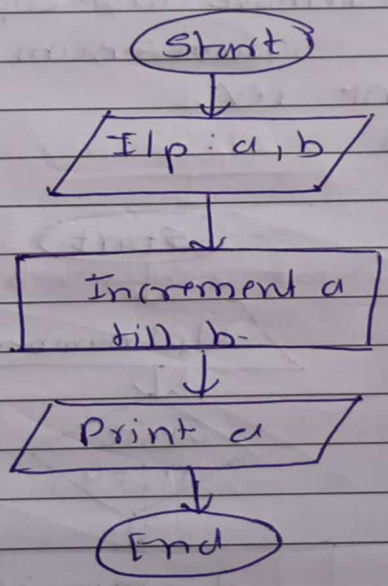
Saathi

Q.12. How to add two nos. without using the arithmatic operators in java?

→ Algorithm:- 1) Start
2) Inp: 2 Numbers a & b
3) Increment a till b
4) Print a
5) End.

Flowchart:-



Saathi

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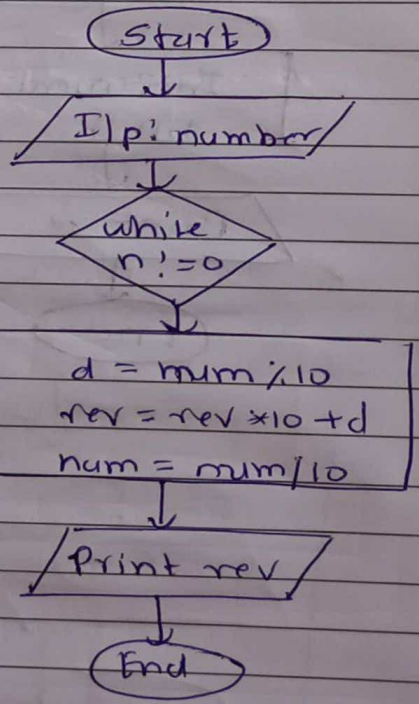
Q.13. Program to reverse a given number

→ Algorithm:-

1) Start
2) I/p : number num
3) while num != 0
   - get last digit from num
     - d = num % 10
     rev = rev * 10 + d
   - remove last digit from num
     num = num / 10
4) Print rev.
5) End

Flowchart:-



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Saathi

Q.14 Program to find the GCD of two given numbers

→ Algorithm:- 1) Start

2) I/p: 2 numbers, a, b.

3) for loop from 1 to smallest of a & b

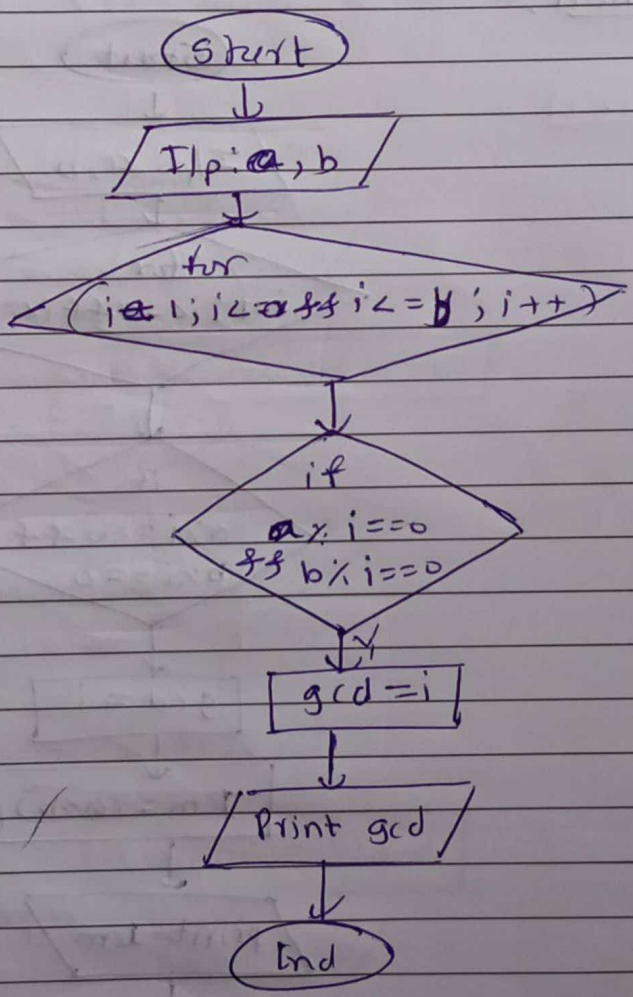
if a % i == 0 && b % i == 0

gcd = i;

4) print gcd

5) End.

Flowchart:-



Saathi

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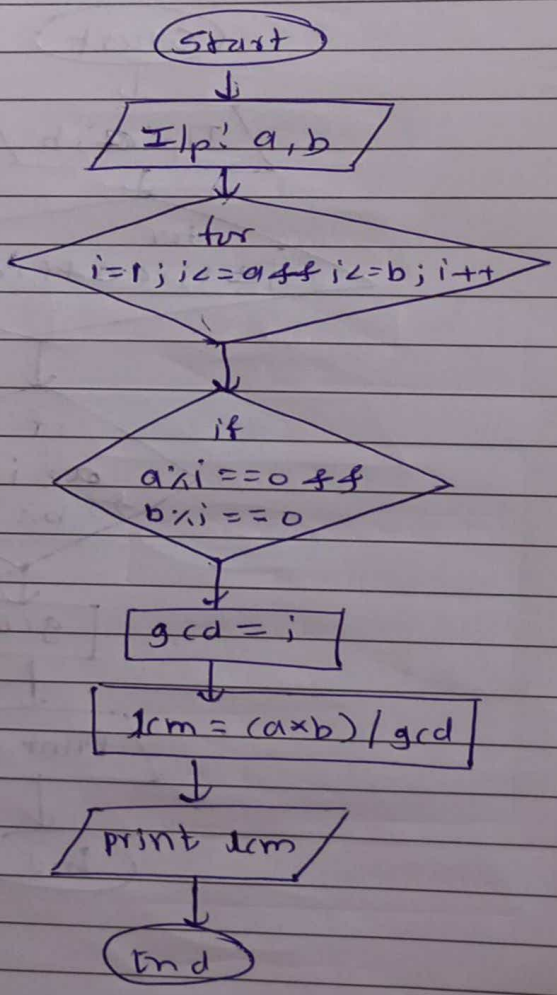
Q.15. Program to find LCM of 2 given numbers

→ Algorithm:-

1) Start
2) I/p : 2 numbers a & b
3) Find gcd
4) used $a * b = LCM \times GCD$:-
   $\therefore LCM = (a \times b) / GCD$
5) Print LCM.

Flowchart:-



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Saathi

Q.16 Program to find LCM of 2 given no. using the prime factors method.

→ Algorithm:- 1) start

2) Ip: 2 numbers a, b

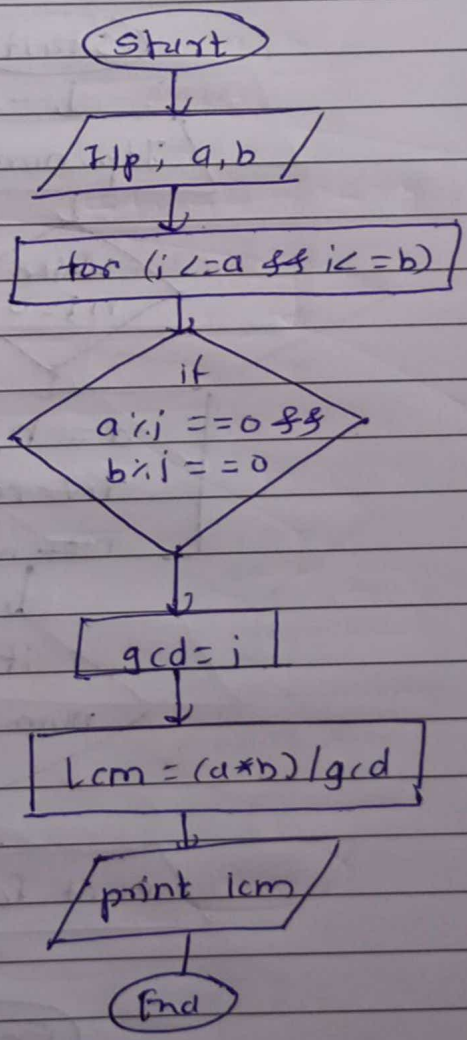
3) find factors of given nos.

4) If a & b are divisible by a factor which is equal to gcd

5) Op: multiply 2 nos. divide by gcd = lcm print lcm

6) end.

flowchart:-



Saathi

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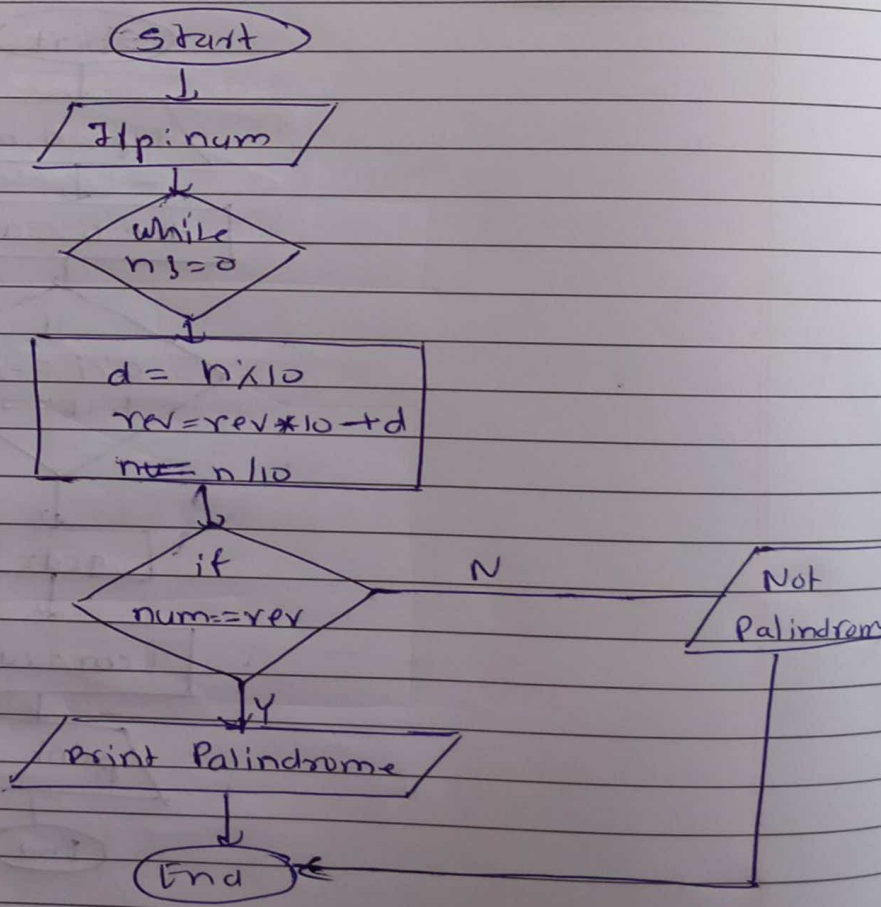
Q.17 Check whether the given no. is a palindrome or not.

→ Algorithm:- 1) Start
2) Ilp: Enter num n
3) while num is not equal to 0
get last digit of number
rev = rev * 10 + d
remove last digit
4) if num = rev then its a palindrome
5) end.

Flowchart:-



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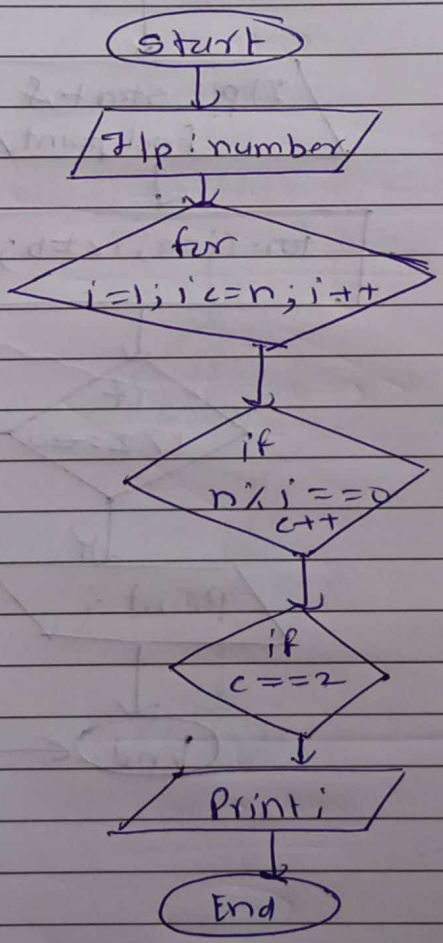
Saathi

Q.18 Program to print all the prime factors of given numbers

→ Algorithm:- 1) Start
2) I/p i number n
3) for i=1 to n
if n is divisible by i then step 4
4) check if i is prime
5) if prime then print i
6) End



Saathi

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Q. 19 Print the series of EVEN nos.

→ Algorithm:- 1) Start

2) Ilp: Enter start and End point

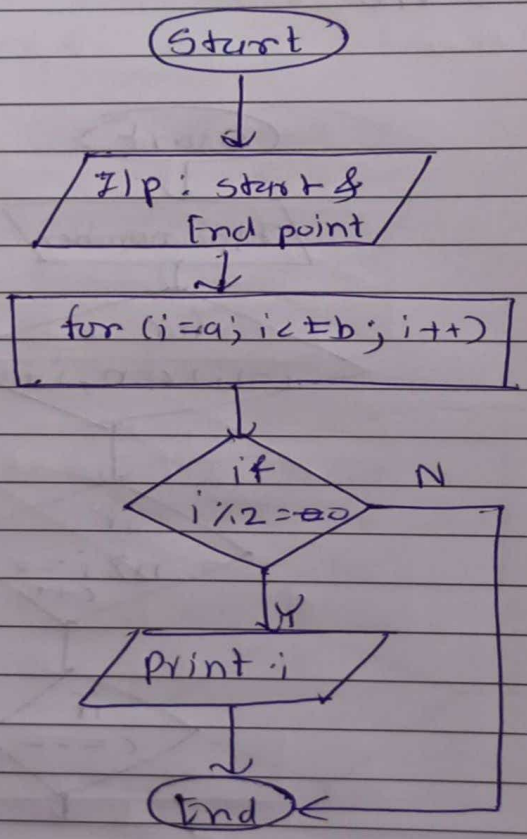
3) for a to b range

if i is divisible by 2 then print i

otherwise end

4) End.

Flowchart:-



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Saathi

Q. 20. Print the series of ODD nos.

→ Algorithm : 1) Start

2) I/p : Enter start & End point

3) for a to b range
if i is not divisible by 2
then print i otherwise end

4) End.

Flowchart :-