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Q1 Ans:

Step 1: Start

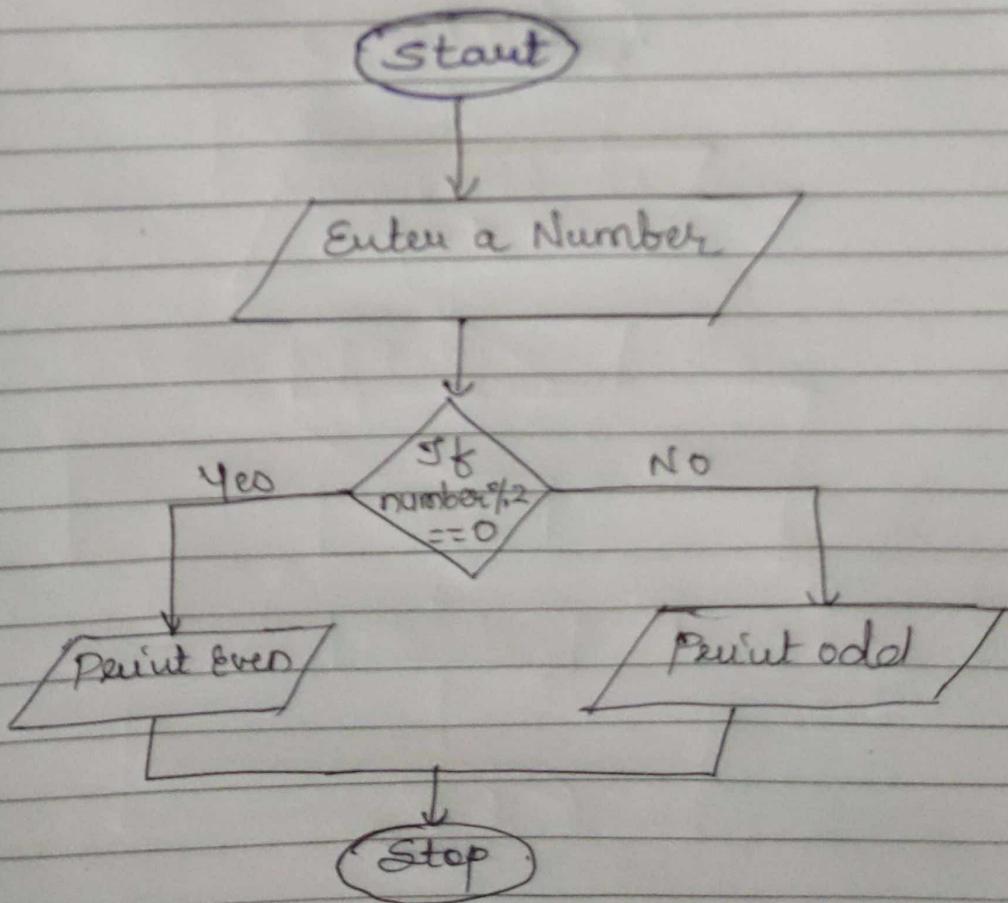
Step 2: Assigns the variable A a value

Step 3: Perform A modulo 2 ($A \% 2$) to see if the result is 0

Step 4: If true print A is even, continue to step 5

Step 5: If false print A is odd, go to step 6

Step 6: Stop



Q.2. Ans:

Algorithm of factorial of a number.

Step 1 : Start

Step 2 : Read a number n

Initialize var : $i = 1$, $\text{fact} = 1$

Step 3 : if $i \leq n$ go to step 4 otherwise go to step 7

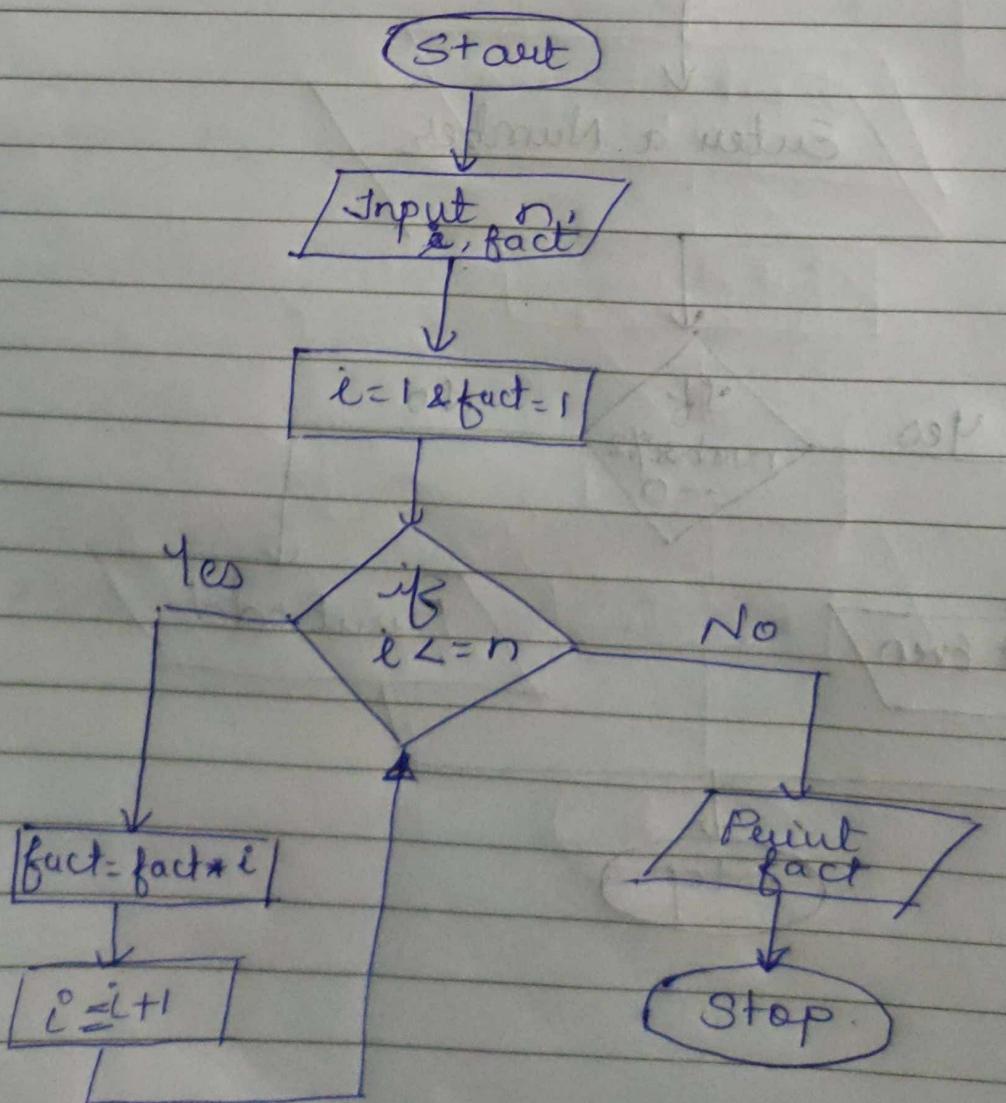
Step 4 : calculate

$\text{fact} = \text{fact} * i$

Step 5 : $i = i + 1$ & go to step 3.

Step 6 : Print fact

Step 7 : Stop.



Q.3 Ans :

Step 1 : Start

Step 2 : Input fact, num

Step 3 : fact = 1, num = 0

Step 4 : Read num

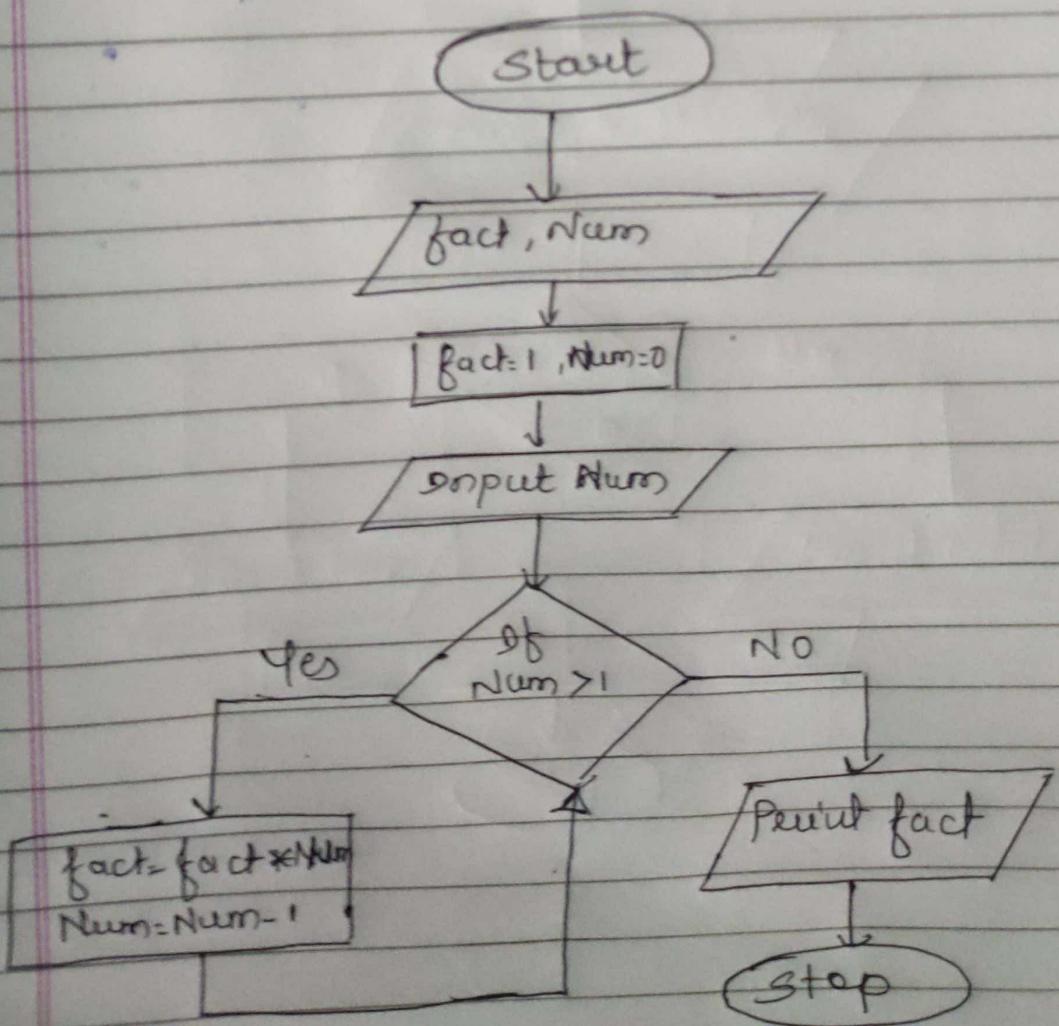
Step 5 : If num > 1 true go to step 6 else go to step 8

Step 6 : fact = fact * num
num = num - 1

Step 7 : Repeat step 5 & 6 till until num = 1

Step 8 : display fact

Step 9 : Stop



Q.4

Aus:

Algorithm

step 1 : Start

step 2 : Input ^{numbers} ~~next~~ A, B

step 3 : Read A, B before swap

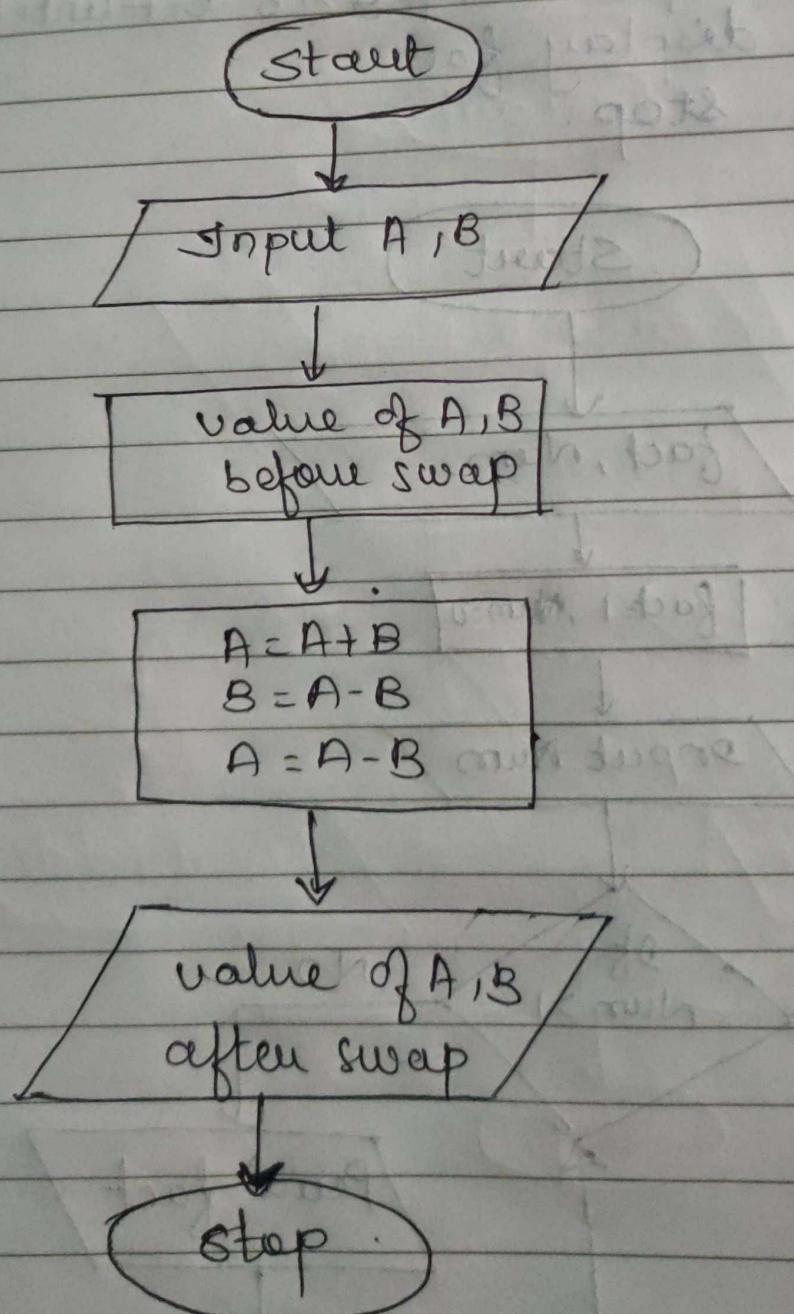
step 4 : $A = A + B$

step 5 : $B = A - B$

step 6 : $A = A - B$

step 7 : display A, B after swap

step 8 : stop



Aus:

③ Algorithm:

Step 1: Start

Step 2: Input num

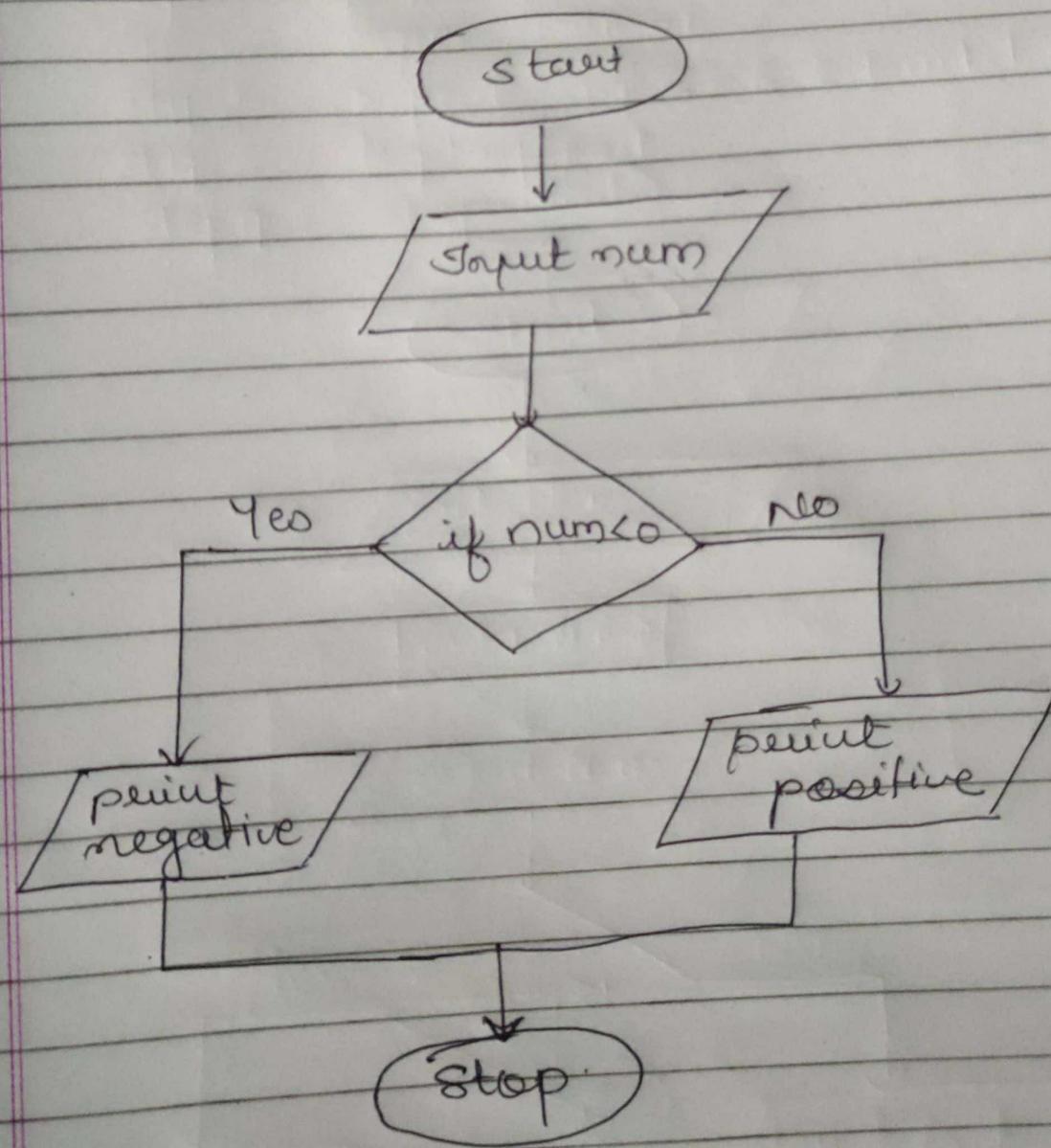
Step 3: if num < 0 go to step 6

Step 4: print positive

Step 5: stop

Step 6: print negative

Step 7: stop.



⑥ Algorithm:

Step 1 : Start

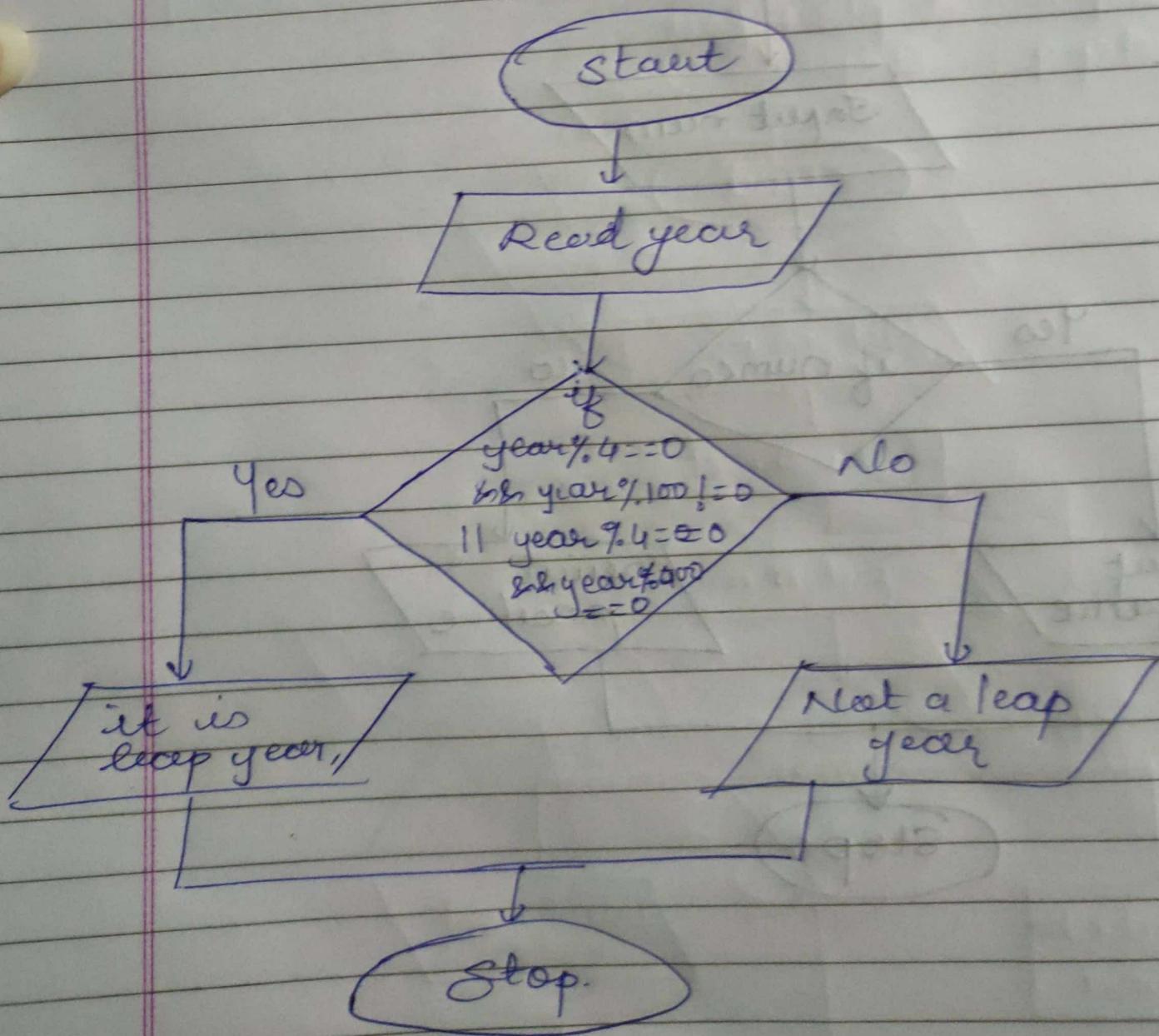
Step 2 : Input year.

Step 3 : if $\text{year} \% 4 = 0$ & $\text{year} \% 100 \neq 0$
or if $\text{year} \% 4 = 0$ & $\text{year} \% 400 = 0$
then go to step 4 or else step 5

Step 4 : print a leap year

Step 5 : not print not a leap year

Step 6 : Stop.



⑦ Algorithm

Step 1: Start

Step 2: Take number n

Step 3: call function $\text{perintno}(n)$

Step 4: Stop

$\text{Perintno}(n) \leftarrow$

Step 1: if $n > 0$ then returns $\text{perintno}(n-1)$

Step 2: Display result

Step 3: stop

8) Algorithm:

Step 1 : Start.

Step 2 : Read Input num, rem

num = 15

Step 3 : while (num > 0)

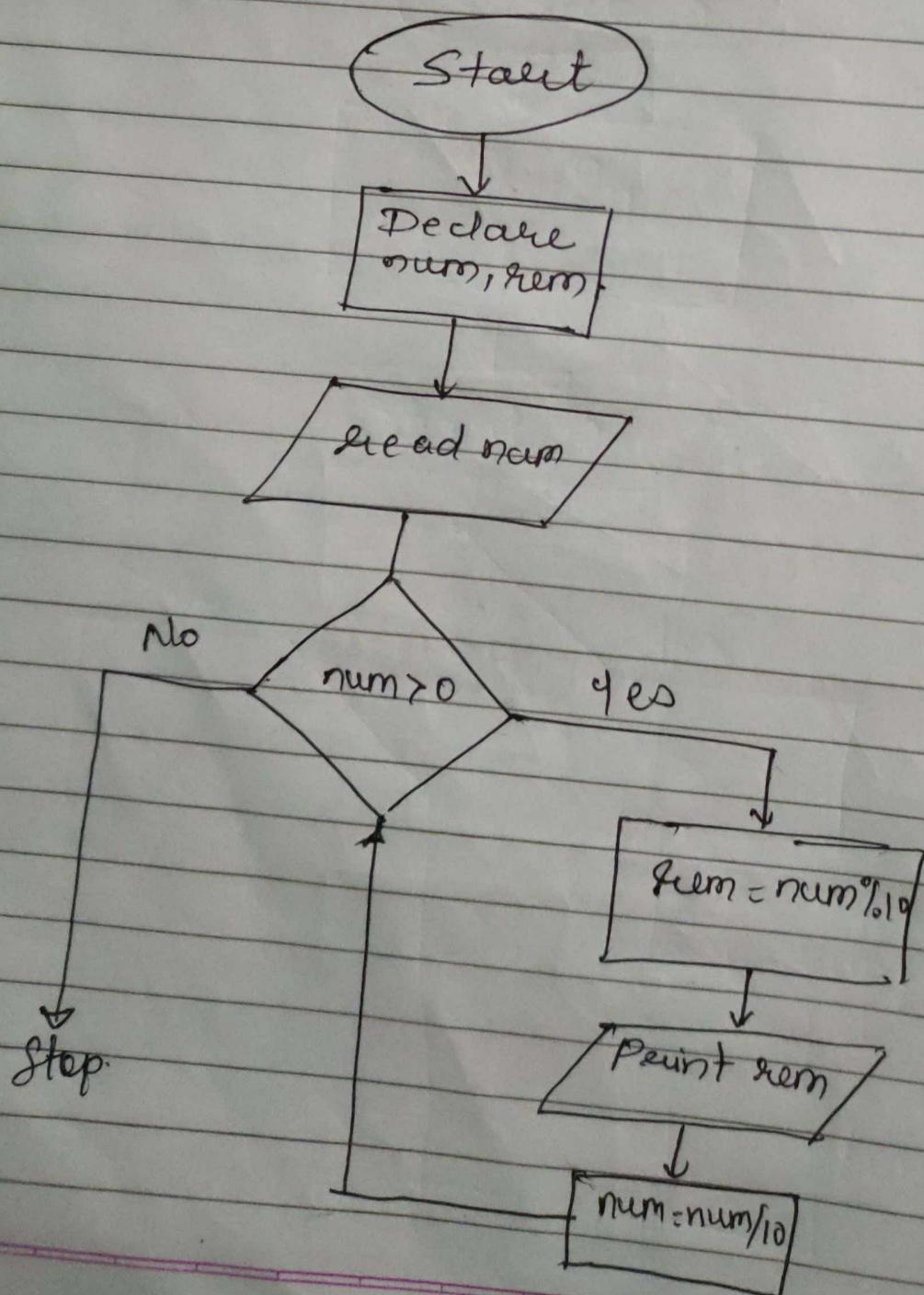
then rem = num % 10

& print

- Step 4 - print rem

num = num / 10

Step 4 : Print Stop.



Algorithm:

Step 1 : Start

Step 2 : declare var n, i

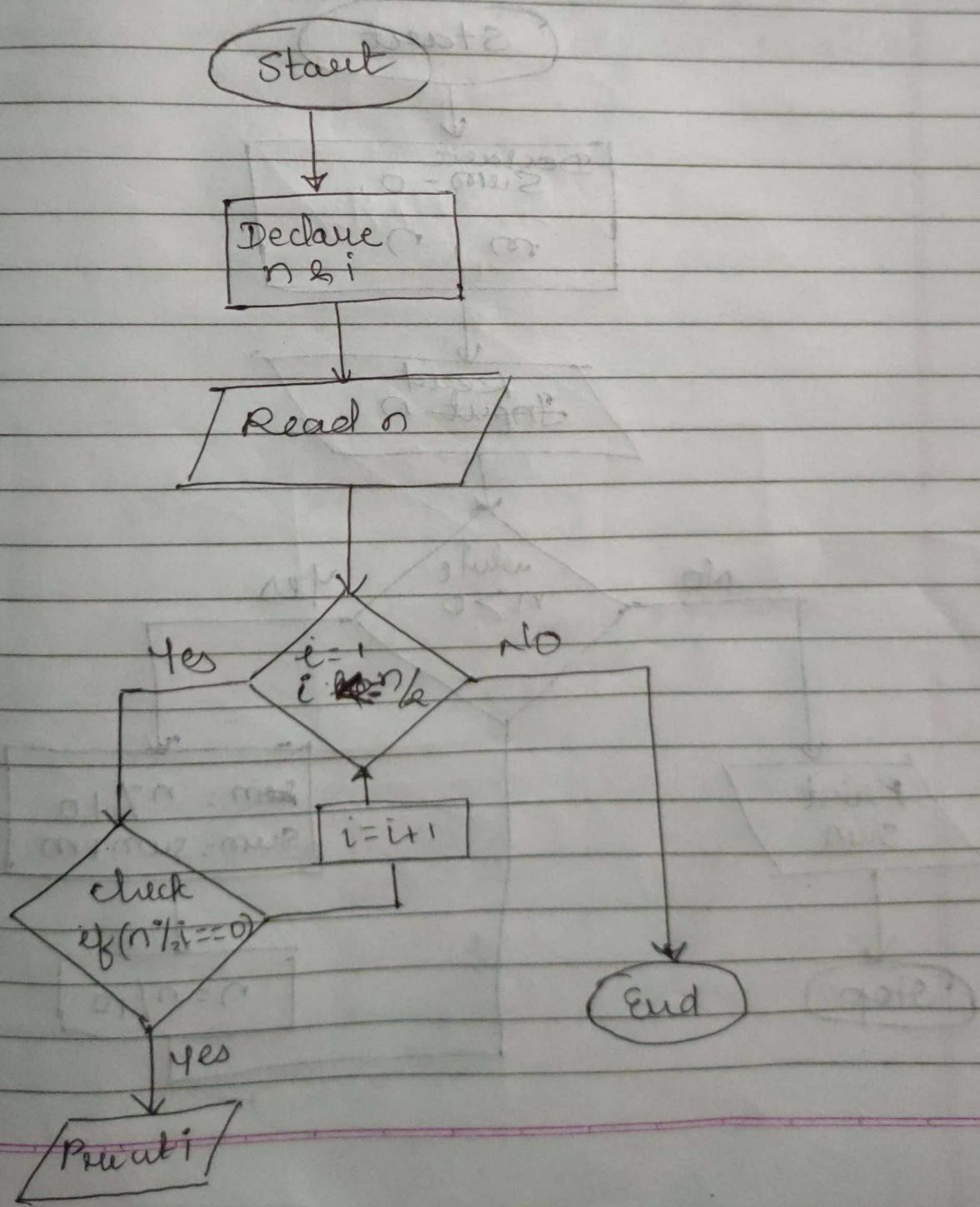
Step 3 : Read n

Step 4 : for i = 1 to $n/2$ do i = i + 1

Step 5 : check if $n \% i == 0$ if yes go to
Step 6 else go to Step 7

Step 6 : print i

Step 7 : Stop.



(10)

Algorithm :

Step 1 : Start

Step 2 : Get number by user (n), Input m , $sum = 0$ Step 3 : Check condition ($n \geq 0$)

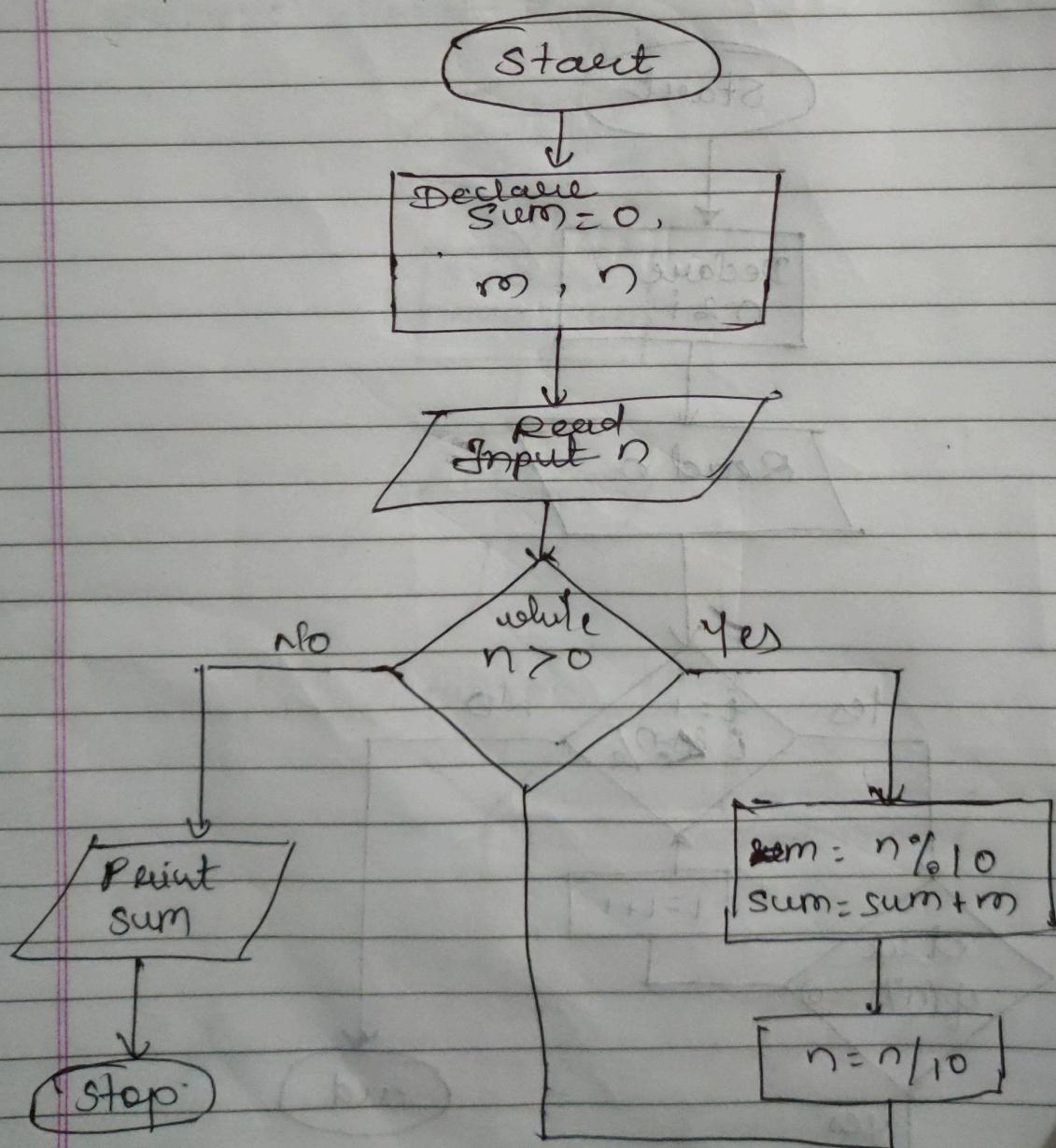
$$m = n \% 10$$

$$sum = sum + m$$

$$then n = n / 10$$

Step 4 : Print sum

Step 5 : Stop



(10)

Algorithm :

Step 1 : Start

Step 2 : Get number by user (n), Input m, sum = 0Step 3 : Check condition ($n \geq 0$)

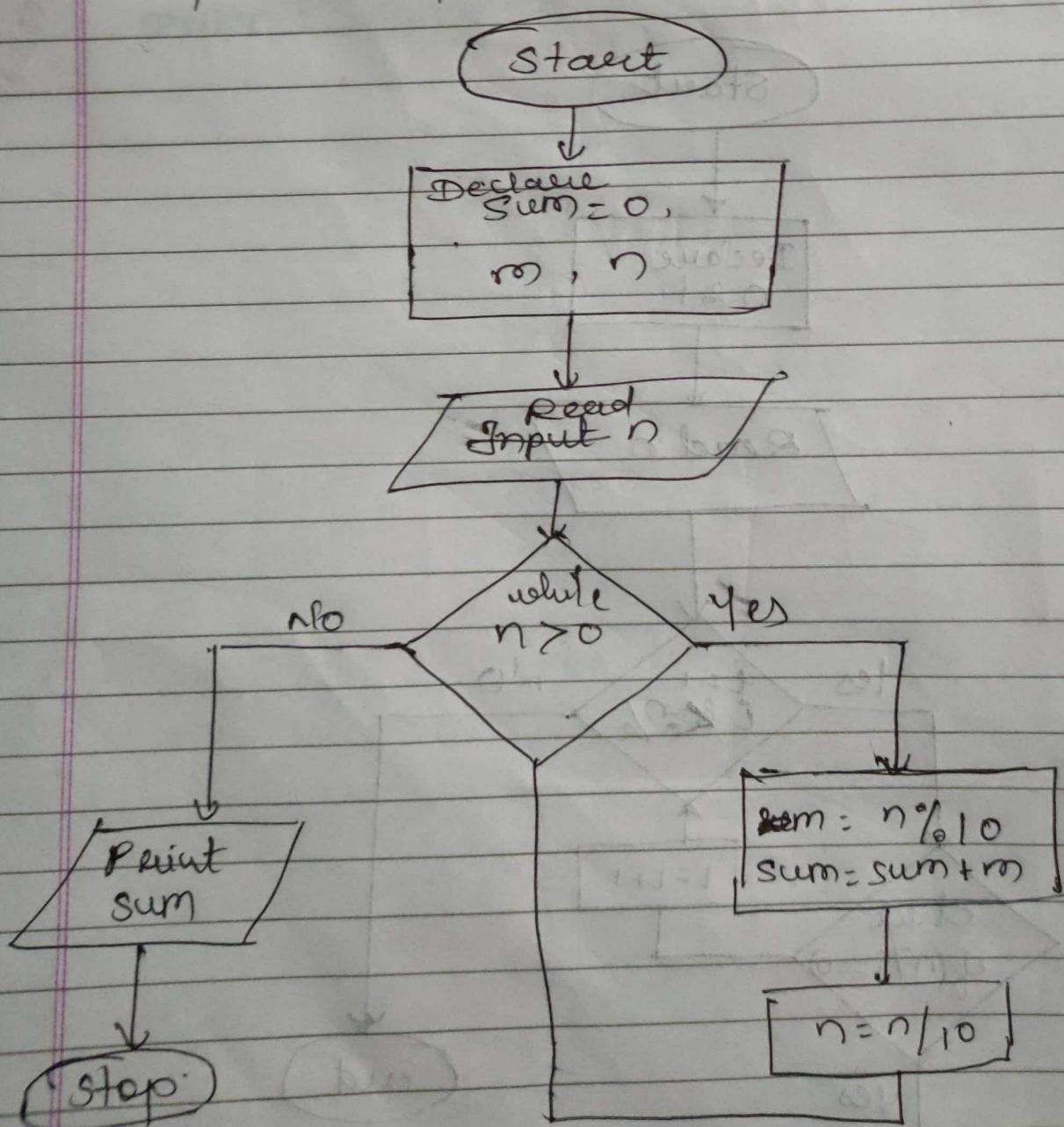
$$m = n \% 10$$

$$\text{sum} = \text{sum} + m$$

$$\text{then } n = n / 10$$

Step 4 : Print sum

Step 5 : Stop



Algorithm:

step 1 : start

step 2 : Declare var a,b,c

step 3 : Read var a,b,c

step 4 : check if $a < b & b < c$

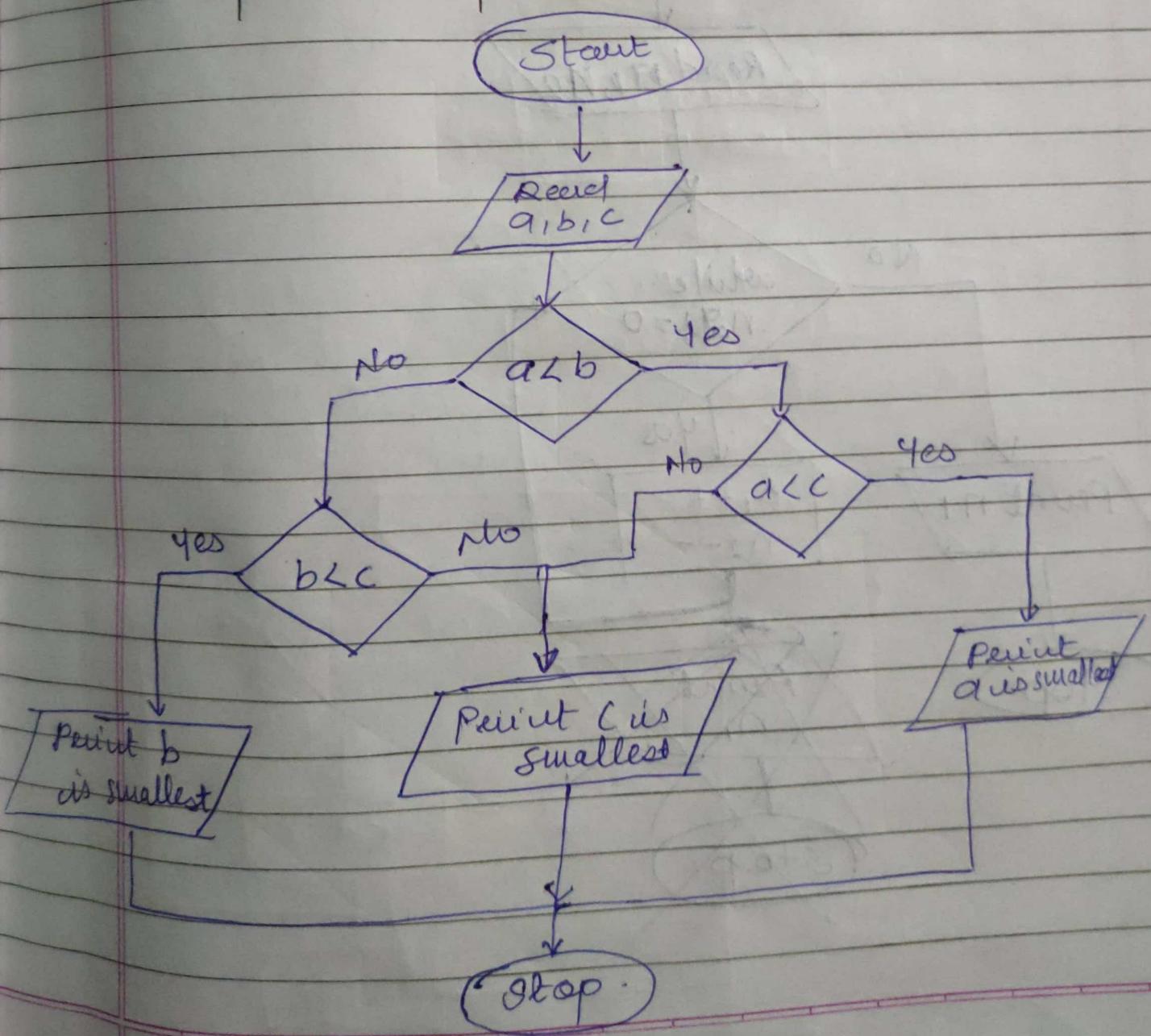
step 5 : If the condition is true go to step 2
else go to step 6

step 6 : check if $b < c$

step 7 : If step 6 is true , print b is
smallest else print c is smallest

step 8 : ~~a~~ is print a is smallest

step 9 : stop .



Algorithm:

Step 1 : Start

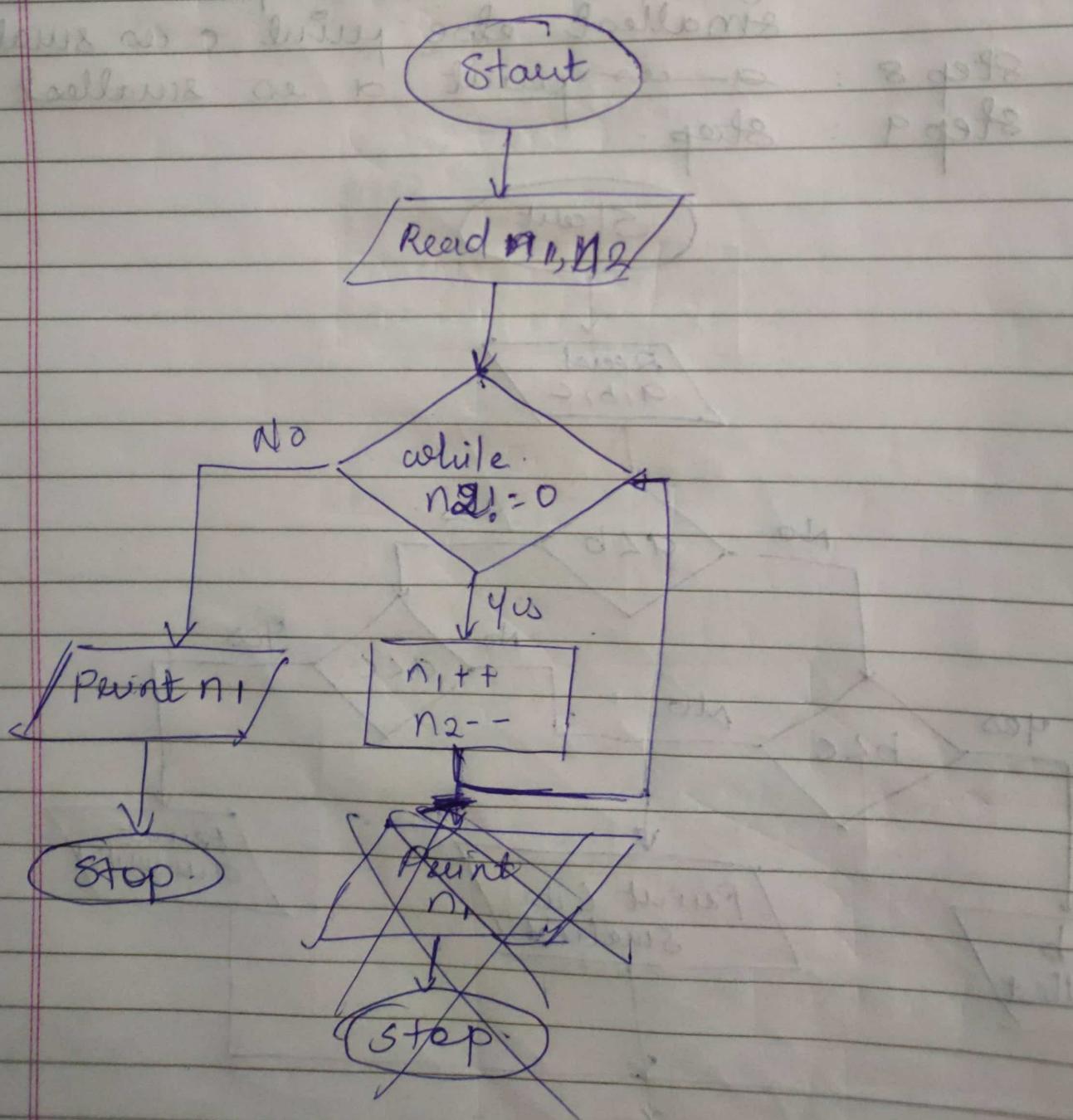
Step 2 : Declare n_1 & n_2

Step 3 : Read n_1, n_2

Step 4 : while ($n_2 \neq 0$),
 increment n_1++
 if false go to step 5

Step 5 : print n_1++

Step 6 : stop



(13) Algorithm :

Step 1 : start

Step 2 : Decline n , rev & rem

Step 3 : Read n , $\text{rev} = 0$

Step 4 : while ($n \neq 0$) is true then

$$\text{rem} = n \% 10$$

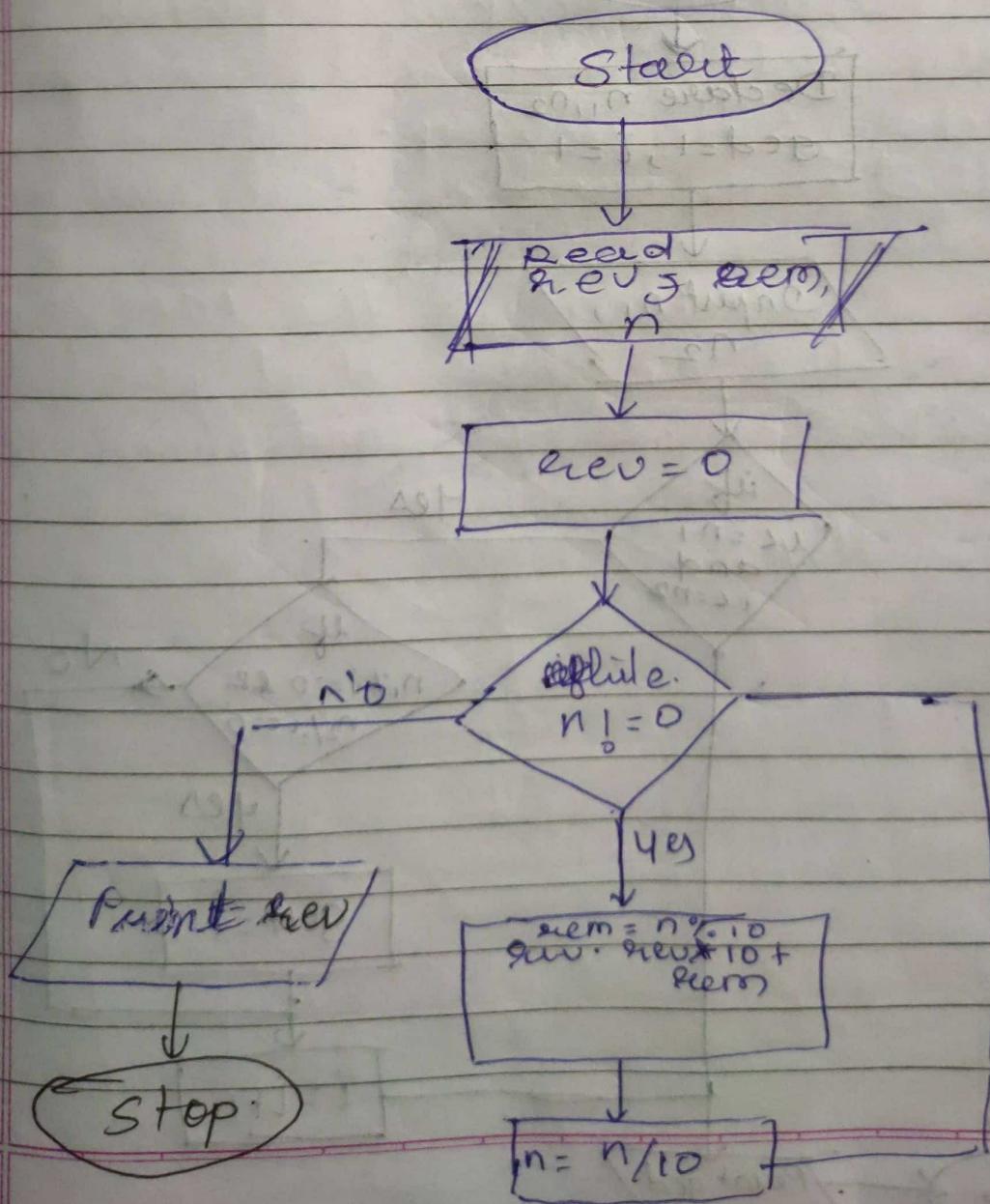
$$\text{rev} = \text{rev} * 10 + \text{rem}$$

Step 5 : now $n = n / 10$ go to step 4

if step 4 is false then go to
Step 6

Step 6 : Print reverse

Step 7 : Stop.



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Step 1 : Start

Step 2 : Declare variable $n_1, n_2, gcd=1, i=1$

Step 3 : Input n_1 & n_2

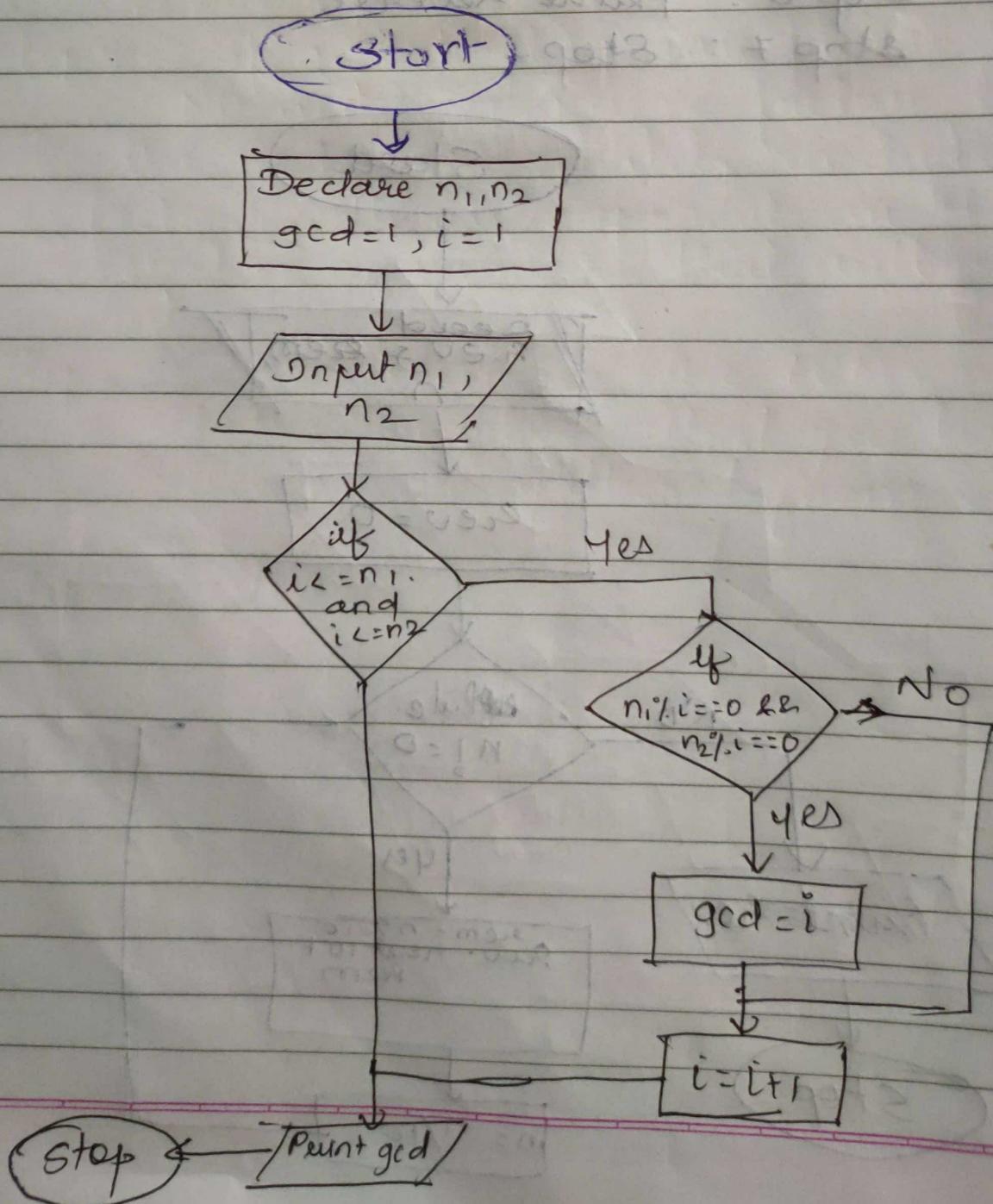
Step 4 : Repeat until $i \leq n_1$ and $i \leq n_2$ else go to step 8

Step 5 : If $n_1 \% i = 0$ & $n_2 \% i = 0$
then $gcd = i$ and $i = i + 1$

Step 6 : ~~$i = i + 1$~~ go to step 4 & 5

Step 7 : Print gcd

Step 8 : Stop.



(15) Algorithm:

Step 1 : Start

Step 2 : Initialize $a \& b$

Step 3 : check $(a > b)$ maximum of $a \& b$

$$\max = (a > b)$$

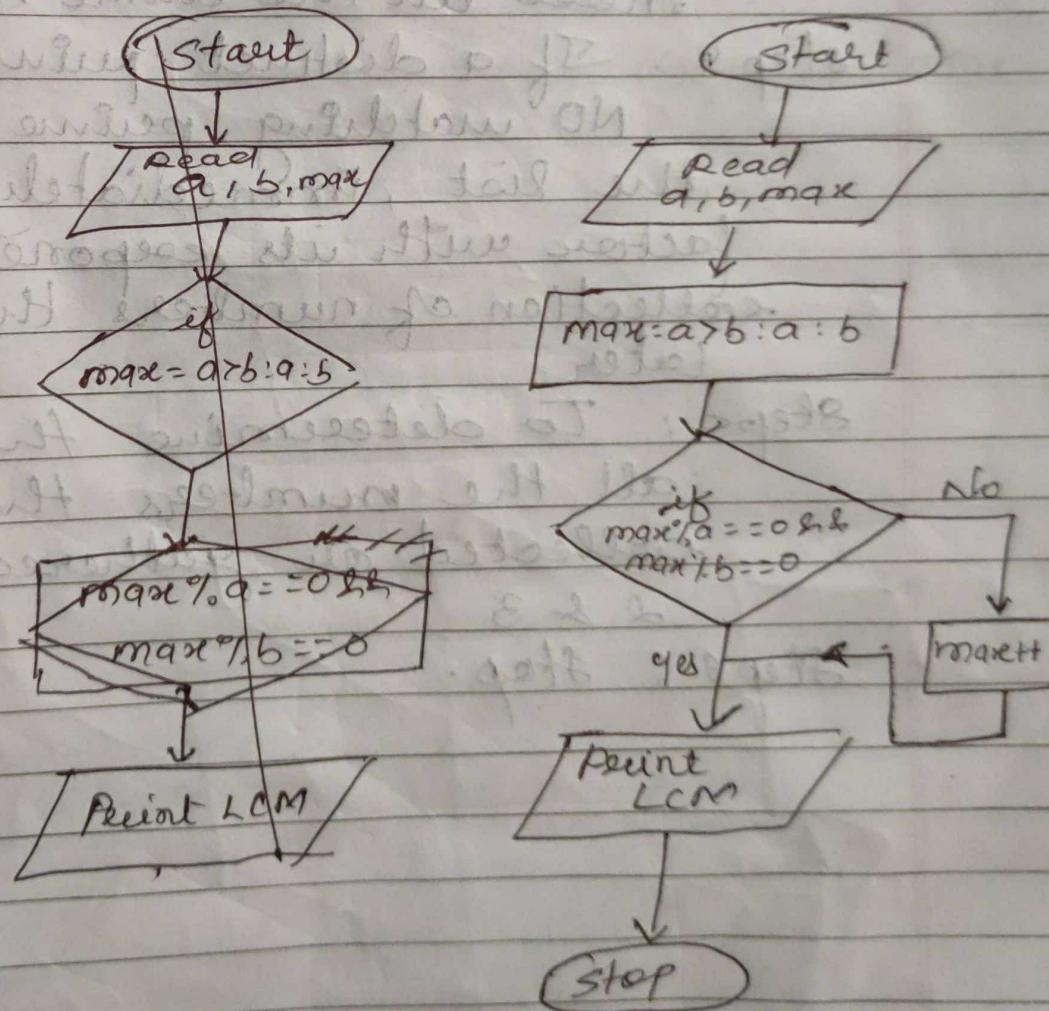
$$\max = a > b \ ? \ a : b$$

Step 4 : $\max \% a$ and $\max \% b$

Step 5 : if yes print $LCM = \max$

Step 6 : else $\max += 1$ & go to step 4

Step 7 : stop



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Algorithm:

Step 1 : Start

Step 2 : Perform prime factorization of numbers. Then write it in exponential form. Align the common prime factor base wherever possible.

Step 3 : For numbers with a common prime factor base, select the prime number that has the highest power implies that it occurs the most in the entire list.

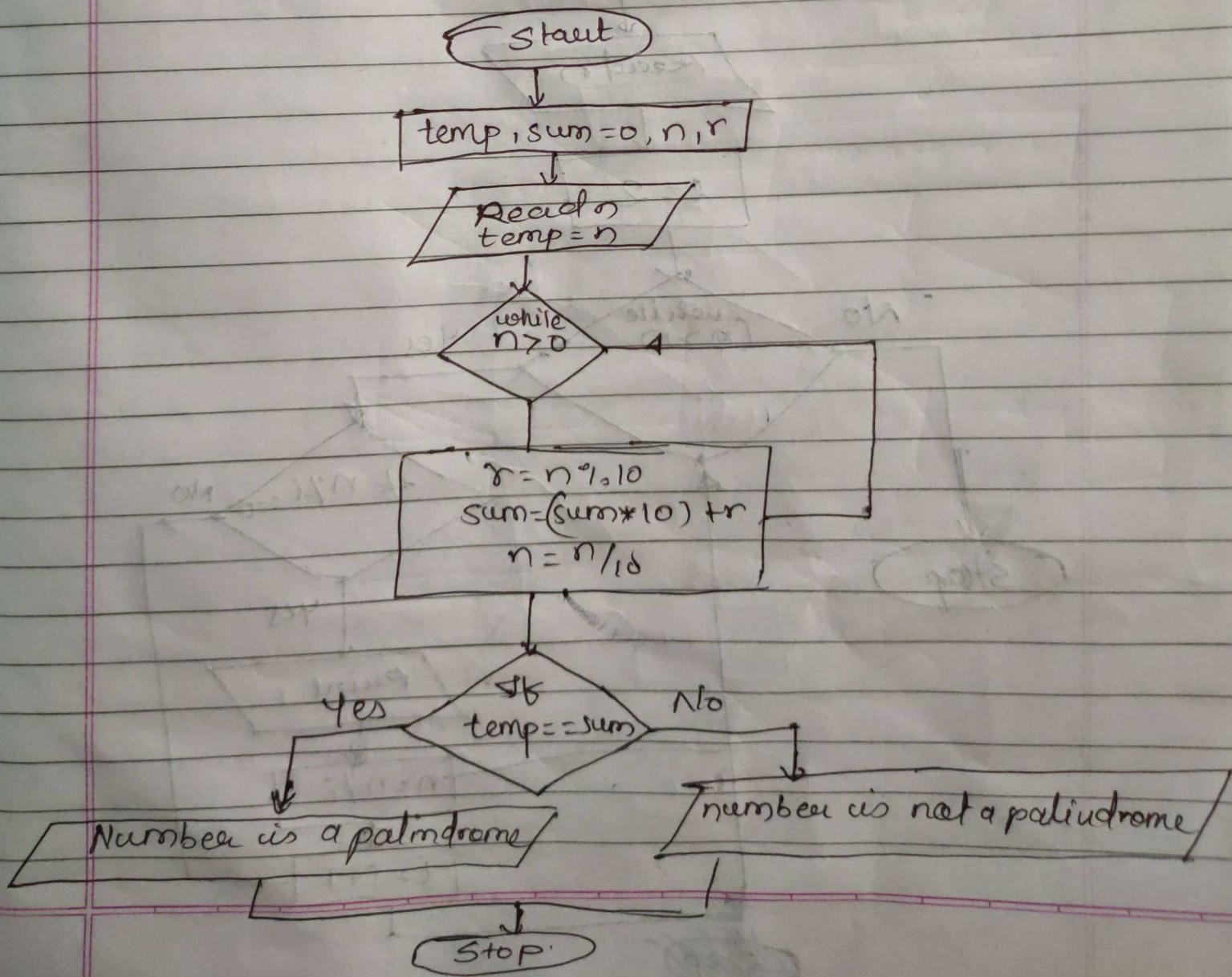
Step 4 : If a distinct prime factor has NO matching prime factor base in the list, immediately include this factor with its exponent in the collection of numbers that will multiply later.

Step 5 : To determine the LCM, multiply all the numbers that you have collected or gathered from steps 2 & 3

Step 6 : Stop.

Algorithm:

- (17)
- Step 1 : Start
 - Step 2 : Initialize sum=0 , temp , n , r
 - Step 3 : Read n & temp=n
 - Step 4 : while ($n > 0$)
 - $r = n \% 10$
 - $sum = (sum * 10) + r$
 - $n = n / 10$
 - Step 5 : Repeat until $n=0$ step 4 until $n=0$
 - Step 6 : check if ($temp = sum$)
 - Step 7 : print If step 6 is true print number is palindrome
 - Step 8 : Else print number is not palindrome.



Algorithms :

(18) Step 1 : start

Step 2 : Read value of n , input i

Step 3 : Initialize $i = 2$

Step 4 : while ($n \geq 1$) go to
if ($n \% i == 0$) then

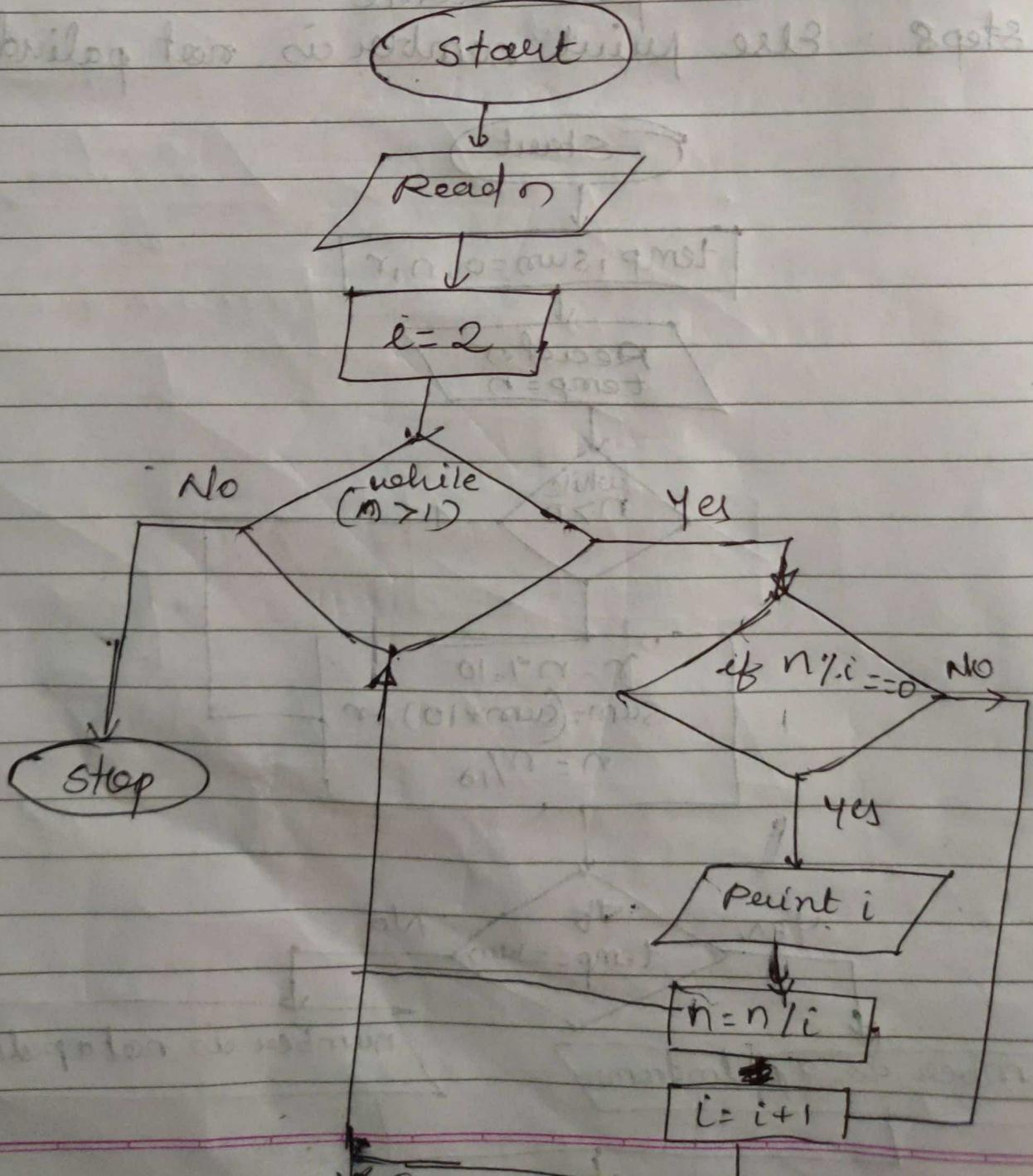
Step 5 : print i else go to step 6

Step 6 : ~~$i = i + 1$~~ $n = n/i$

Step 7 : else $i = i + 1$

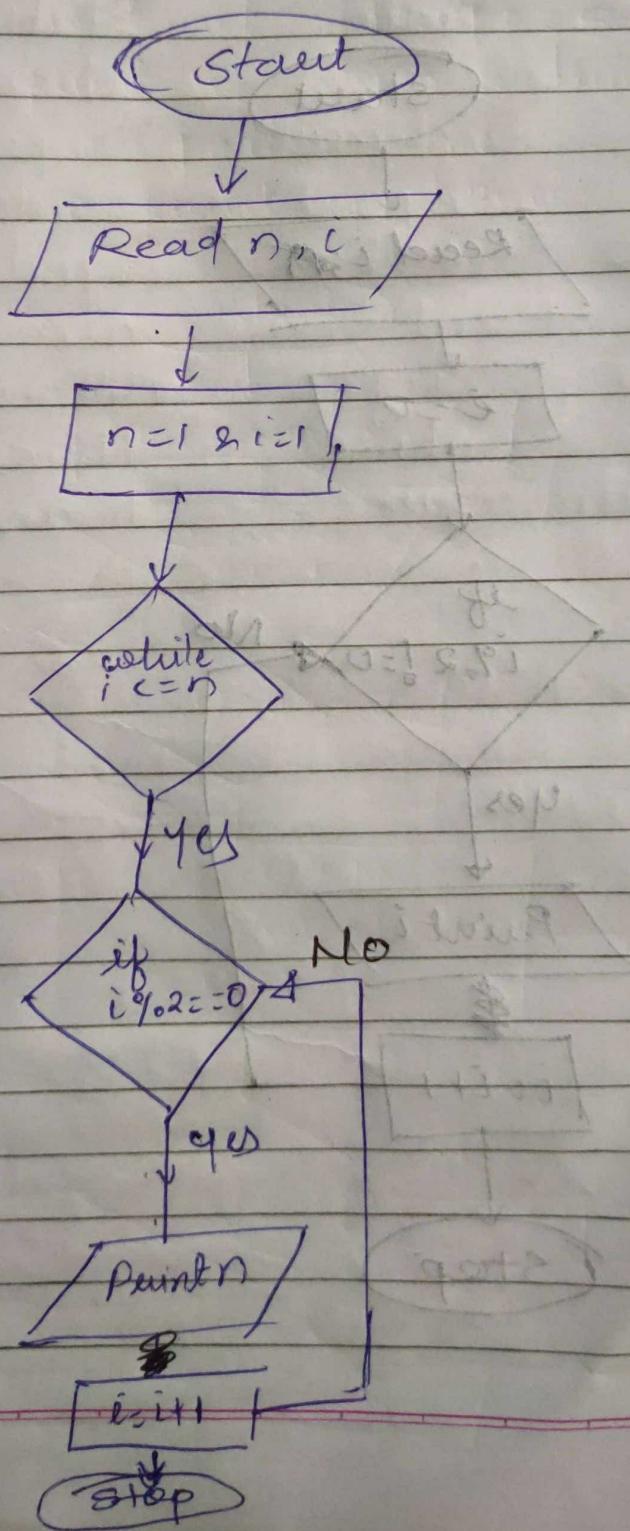
Step 8 : go to step 4

Step 9 : stop



Algorithm:

- (19)
- Step 1 : Start
 - Step 2 : Initialize the variable $n & i = 0$
 - Step 3 : ~~while~~ $i < n$
 - Step 4 : if $i \% 2 == 0$
 - Step 5 : Print the number i
 - Step 6 : $i = i + 1$
 - Step 7 : Stop.



Algorithm :

Step 1 : Start

Step 2 : Assign $i = 0$, n

Step 3 : ~~while~~ $i < n$. Repeat steps 4, 5, 6
until $i = n$

Step 4 : if $i \% 2 = 0$ go to step 5. else step 6 &

Step 5 : Print i

Step 6 : $i = i + 1$

Step 7 : Stop.

