PROGRAM :

Computer performs variety of tasks, but only when — instructions are supplied to the computer.

⇒ When a set of sequential instructions is written to perform any task by computer it is called Computer Program.

- Computer executes the program, ie it follow the instructions & perform actions accordingly.

ALGORITHM :

Algorithm is finite sequence of steps required to solve the given problem

⇒ Same problem can be solved with different methods, so more than one algorithm may exists for the solution of one problem.

Properties

- Steps used in algorithm must be unambiguous and precisely defined
- Uncertainity about the instruction to be executed next should be avoided
- Steps in algorithm should be finite & should be, terminated properly.

example

Algorithm to calculate addition of two Nos.

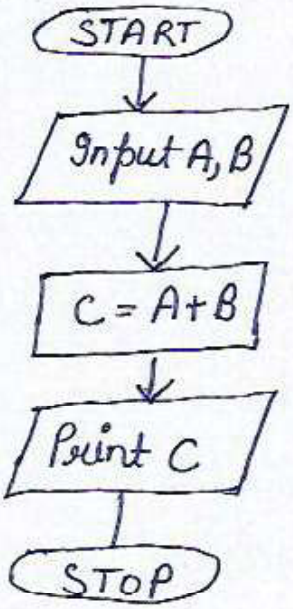
1. Start.
2. Read two numbers as A & B
3. Add numbers A & B and store result as C
4. Display C
5. Stop.

Flow Charts

A pictorial representation of an algorithm is called flow chart.

In flow chart the steps in the algorithm are represented in the form of different shapes of boxes & the logical flow is indicated by interconnecting arrows.

eg.



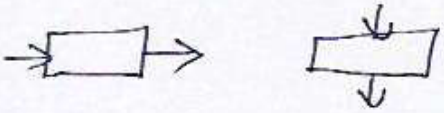
Rules for Preparing Flow charts

→ Flow chart should be neat & easy to follow so that it will be clearly understood.

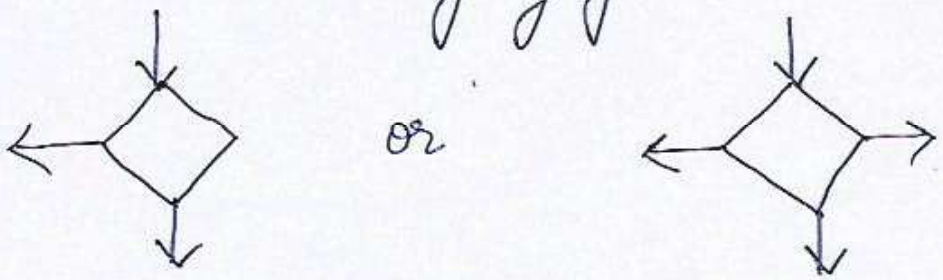
→ A logical start & end must be given to the flowchart.

→ Flow chart include necessary steps in logical order

→ Only two directions left to right or top to bottom are allowed for a procedure in flowchart.

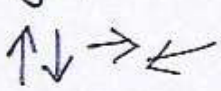
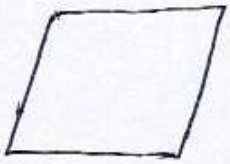
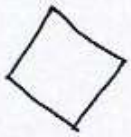
→ There is only one flow line should come out from process symbol 

→ The decision making symbol should have only one incoming flow line, however it may have two or three out-going flow lines



→ Terminal symbol ie: start & stop have only one flow-line.

Basic Symbols used in Flow Charts :

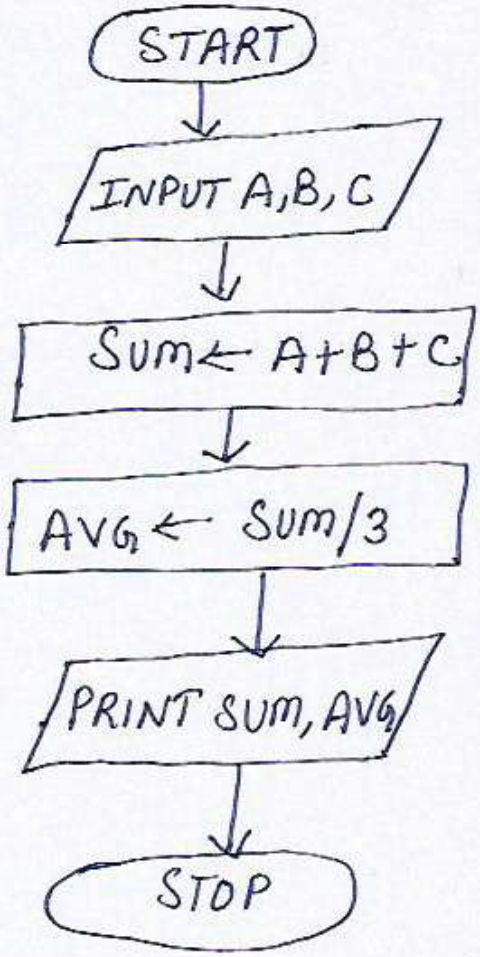
Symbol	Name	Description
	Flow Lines	Flow Lines connect symbols in Flow-Chart & indicates direction of flow.
	Terminal (Start/ Stop)	This is used to represent start & end of Flow chart
	Input/output	It represents information which system reads as input or sends as output
	Processing	Processing of system is represented by this Symbol eg: arithmatic operation, etc
	Decision	This symbol is used to check any condition or take decision for which there are two or more

Q. Flow Chart & Algorithm to find sum & Average of 3 Numbers.

Algo

1. START
2. PRINT " Enter three number"
3. INPUT A, B, C
4. SUM = A+B+C
5. AVG = SUM/3
6. PRINT SUM, AVG
7. STOP

Flow chart



Qo. Algo & Flow Chart to print number divisible by 7, from 1 to N numbers

Algo

① START

② PRINT " Enter number N"

③ INPUT N

④ COUNT ← 1

⑤ WHILE COUNT ≤ N

Begin

Compute R = Count % 7

If R = 0

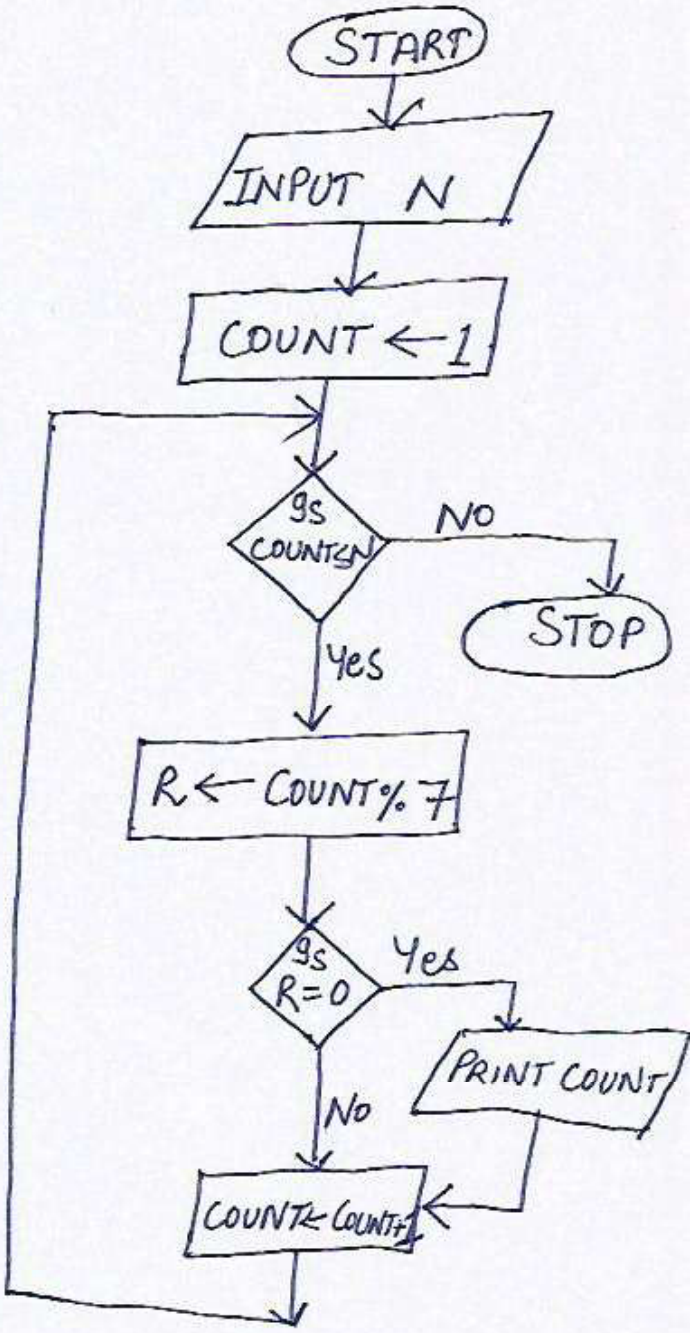
PRINT COUNT

End If

Compute COUNT ← COUNT+1

END while

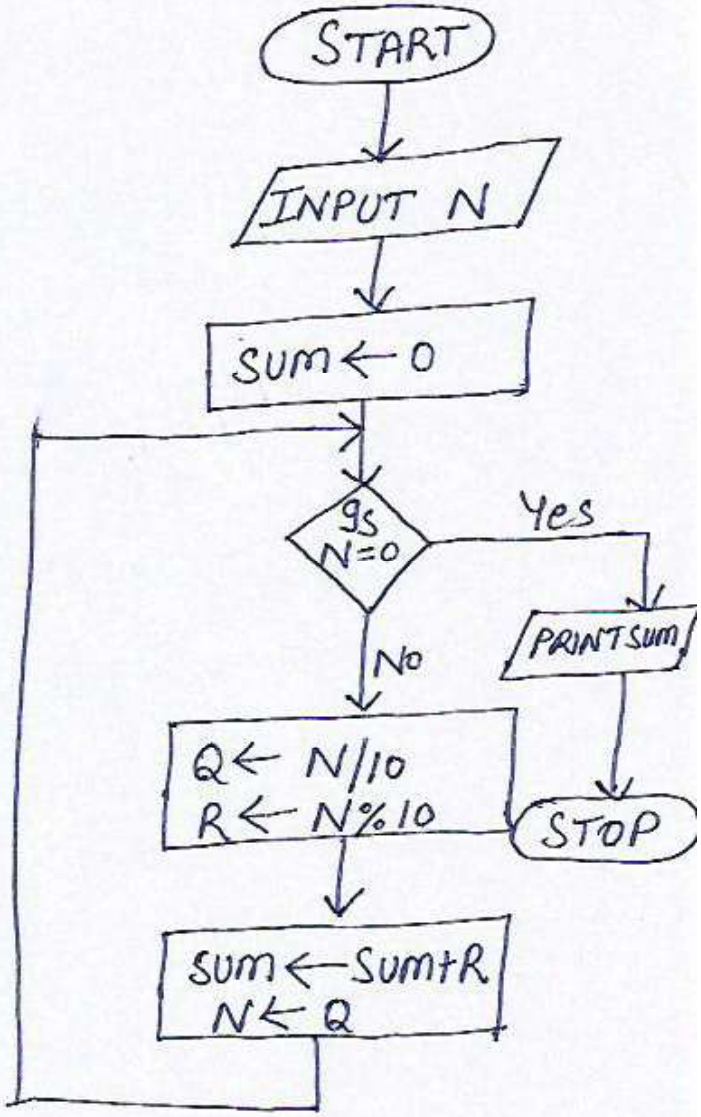
⑥ STOP



Qe Algo & Flow chart to find the sum of digits of a given number

Algo

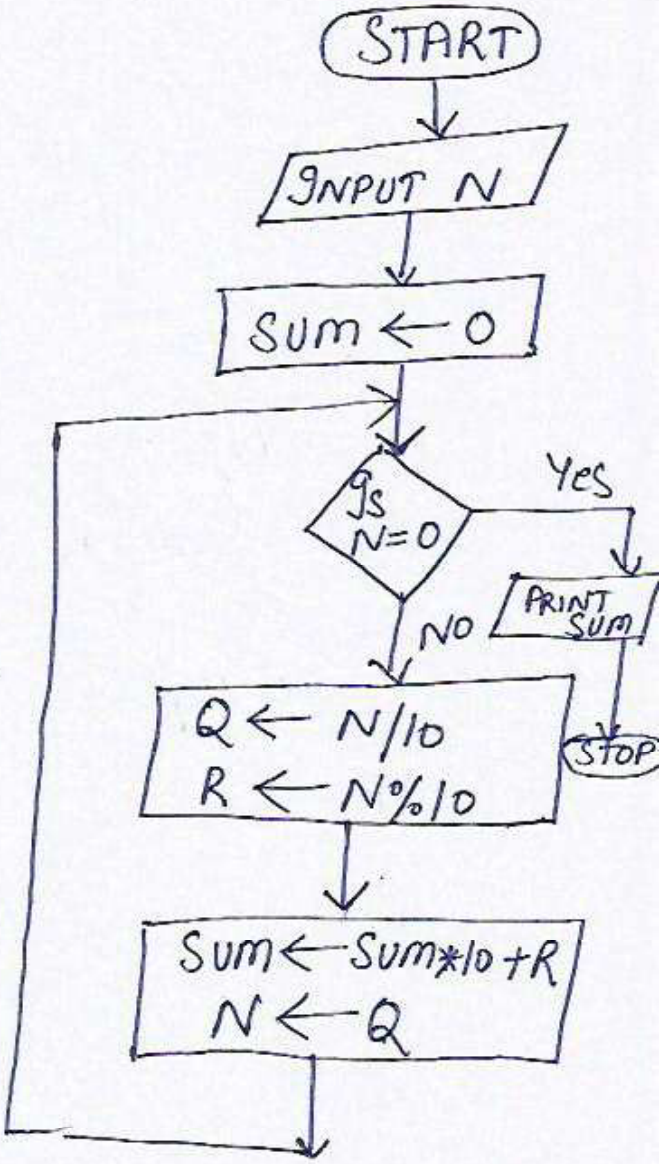
① START
② PRINT " Enter Number"
③ INPUT N
④ SUM ← 0
⑤ If N=0
PRINT SUM & goto step 6
ELSE
Q ← N/10
R ← N%10
SUM ← SUM+R
N ← Q
goto step 5
⑥ STOP



Q. Algorithm & Flow chart for Reverse digit of given number

Algo

① START
② PRINT "Enter Number"
③ INPUT N
④ SUM ← 0
⑤ If N = 0
PRINT Sum & goto Step 6
ELSE
Q ← N/10
R ← N%10
Sum ← Sum x 10 + R
N ← Q
goto step 5
⑥ STOP



* Fibonacci Series
* Factorial
* Prime Number
*

Eg: Algorithm & Flow chart to find largest of 3 numbers

Algo.

① START

② PRINT "Enter three numbers"

③ INPUT A, B, C.

④ If A > B Then

    If A > C

      PRINT A is largest

    Else

      PRINT C is largest

    End If

  Else

    If B > C

      Print B is largest

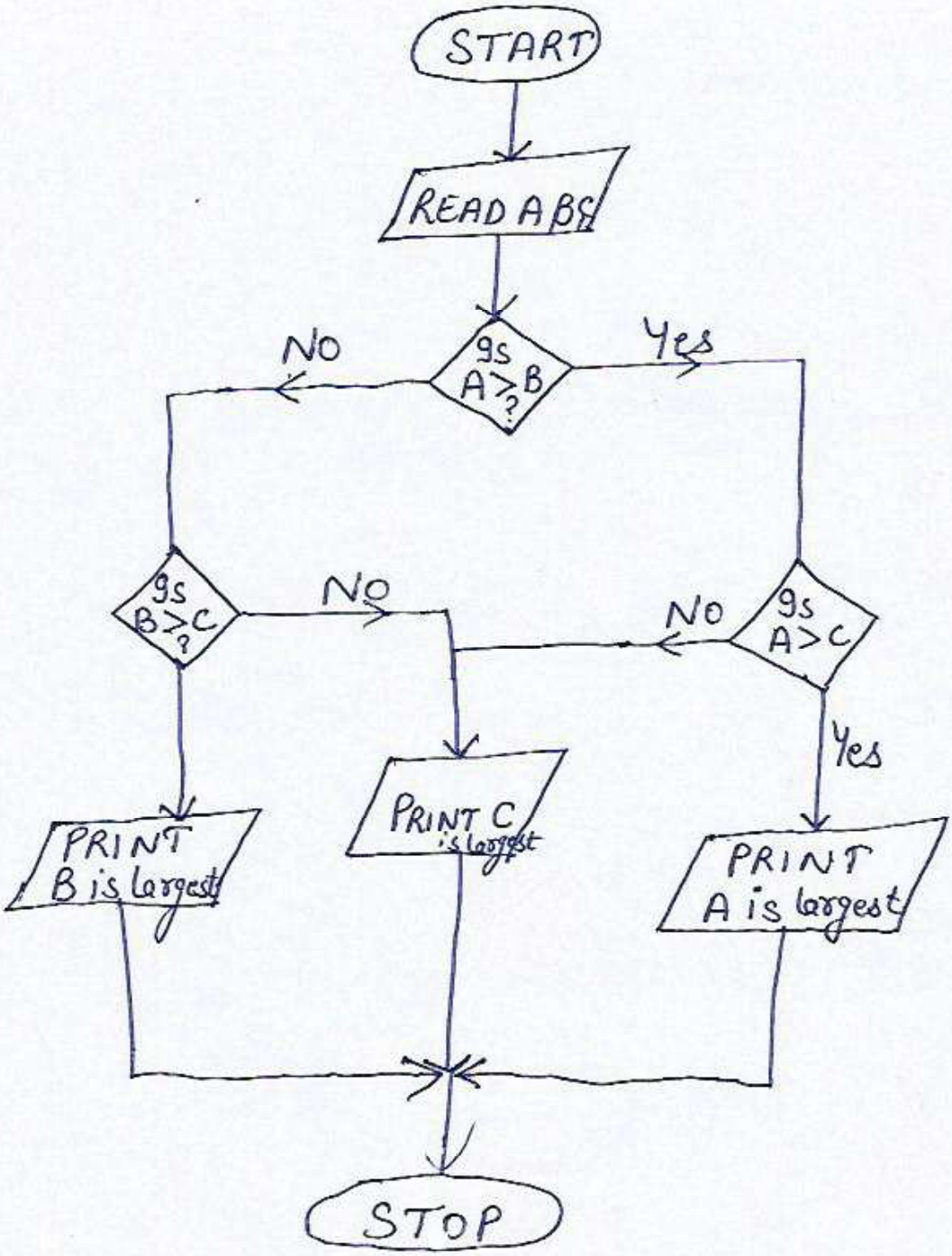
    Else

      PRINT C is largest

    End If

  End If

⑤ STOP


START
READ A B&C
Is A>B ?
No
Yes
Is B>C ?
No
Is A>C ?
No
Yes
PRINT B is largest
PRINT C is largest
PRINT A is largest
STOP