Algorithm & Flowchart
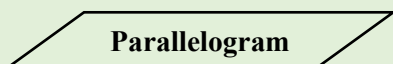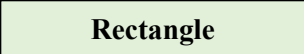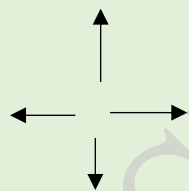
❖ An algorithm is the step-by-step procedure for solving a problem.

❖ A flowchart is the pictorial representation of an algorithm.

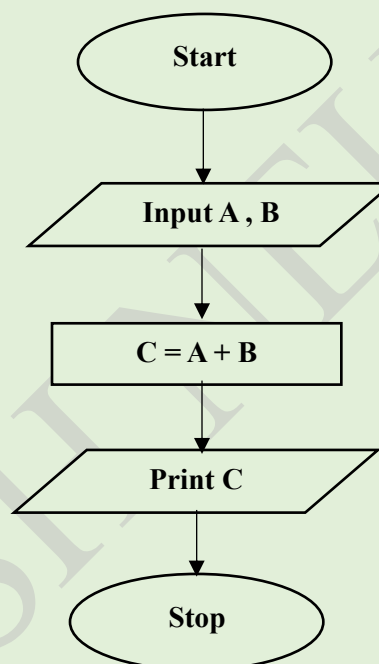| Symbols	Meanings
Oval	Start / End
Parallelogram	Input / Output
Rectangle	Processing
Diamond	Decision Making
	To show the flow (next step)

Question 1: Write algorithm and draw flowchart to add two numbers.

Algorithm

Step 1: Start
Step 2: Input two numbers and store in A and B
Step 3: ADD A and B and store the result in C
Step 4: Print C
Step 5: Stop

Flowchart

```
           ┌─────────────┐
           (    Start     )
           └──────┬──────┘
                  │
                  ▼
          ╱──────────────╱
         ╱  Input A , B  ╱
        ╱───────────────╱
                  │
                  ▼
         ┌────────────────┐
         │   C = A + B    │
         └────────┬───────┘
                  │
                  ▼
          ╱──────────────╱
         ╱    Print C    ╱
        ╱───────────────╱
                  │
                  ▼
           ┌─────────────┐
           (    Stop      )
           └─────────────┘
```
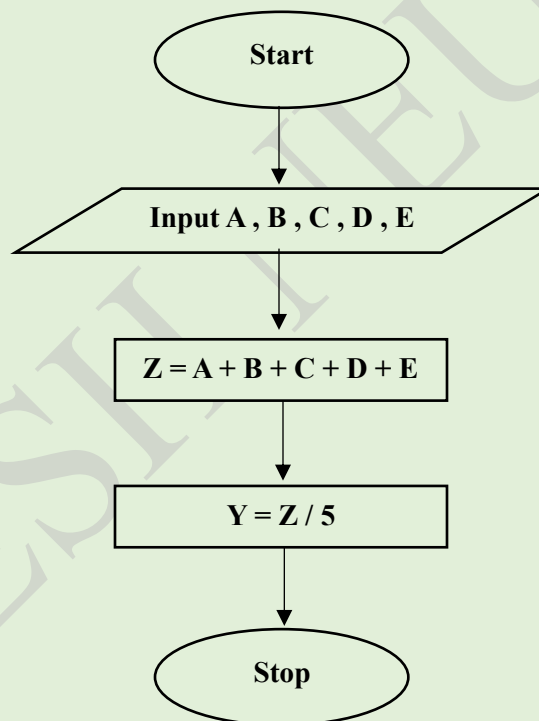
Question 2: Write algorithm and draw flowchart to find average of 5 numbers.
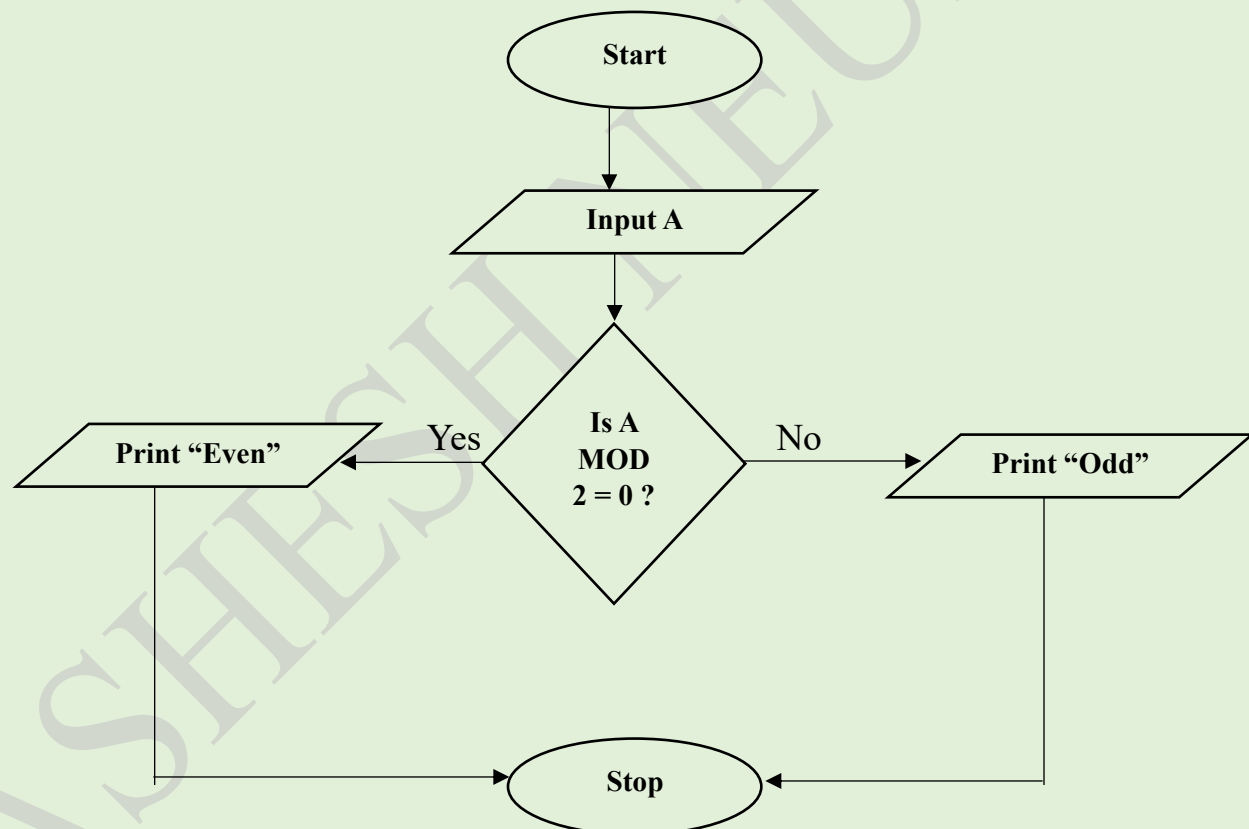
Algorithm

Step 1: Start
Step 2: Input five numbers and store in A , B , C , D and E.
Step 3: ADD A , B , C , D and E and store result in Z.
Step 4: DIV Z by 5 and store result in Y.
Step 5: Print Y
Step 6: Stop

Flowchart

```
        ┌─────────────┐
        │    Start     │
        └─────────────┘
               │
               ▼
    ╱─────────────────────╲
    │  Input A , B , C , D , E │
    ╲─────────────────────╱
               │
               ▼
    ┌─────────────────────┐
    │  Z = A + B + C + D + E  │
    └─────────────────────┘
               │
               ▼
    ┌─────────────────────┐
    │      Y = Z / 5       │
    └─────────────────────┘
               │
               ▼
        ┌─────────────┐
        │    Stop      │
        └─────────────┘
```
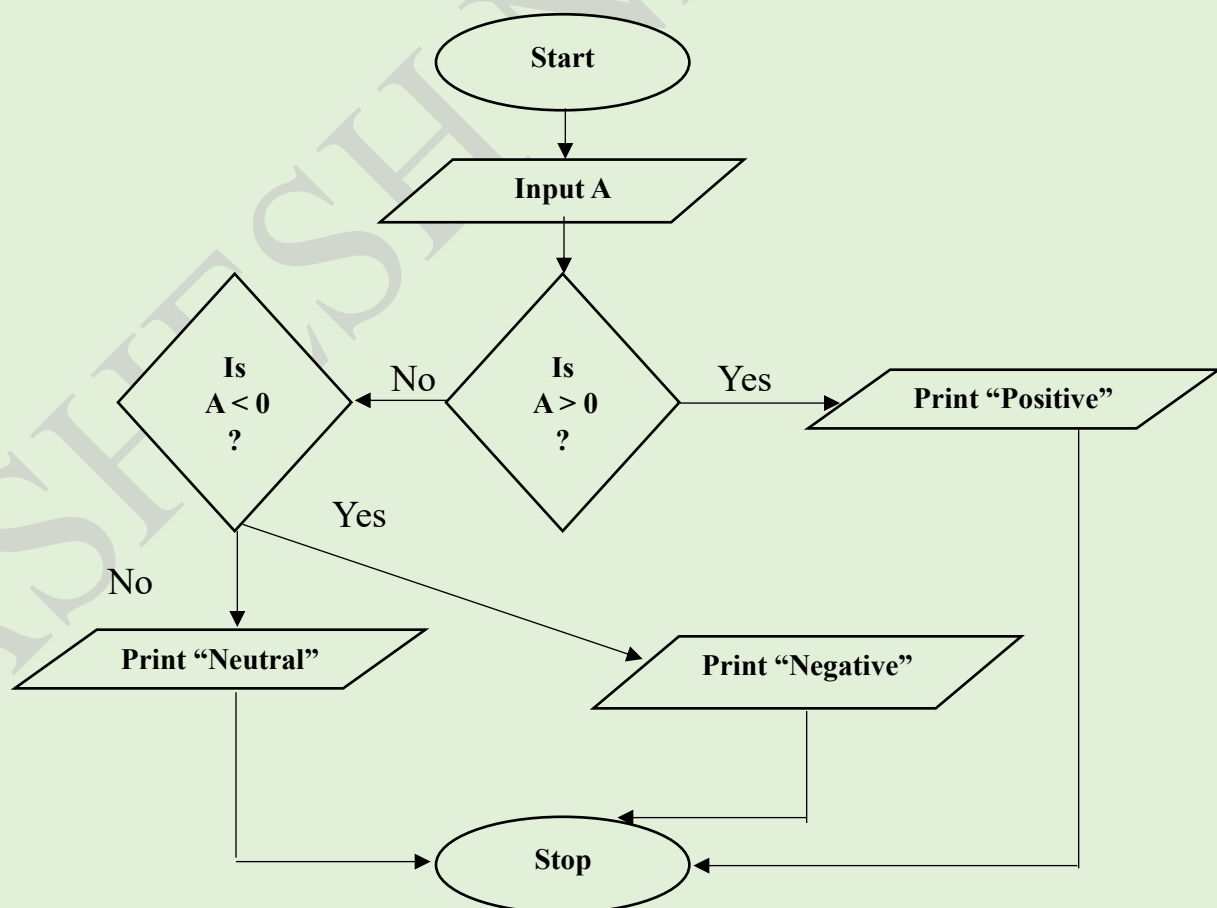
Question 3: Write algorithm and draw flowchart to check odd/even.

Algorithm

Step 1: Start
Step 2: Input a number and store in A.
Step 3: IF A MOD 2 = 0. THEN
      Print "Even" and goto Step 4.
      ELSE
      Print "Odd" and goto Step 4.
      END IF
Step 4: Stop

Flowchart

```
                    ( Start )
                        |
                        v
                  / Input A /
                        |
                        v
                    /   Is A   \
   / Print "Even" / <--Yes-- <  MOD    > --No--> / Print "Odd" /
        |                    \ 2 = 0 ? /                |
        |                        \  /                   |
        |                                               |
        +----------------> ( Stop ) <------------------+
```

Question 4: Write algorithm and draw flowchart to check positive/negative/neutral.

Algorithm

Step 1: Start
Step 2: Input a number and store in A.
Step 3: IF A>0. THEN
      Print "Positive" and goto Step 4.
      ELSE IF A<0. THEN
      Print "Negative" and goto Step 4.
      ELSE
      Print "Neutral" and goto Step 4.
      END IF
Step 4: Stop

Flowchart

Question 5: Write algorithm and draw flowchart to input a number, print all its factors and find their sum.

Algorithm

Step 1: Start
Step 2: Input a number and store in N.
Step 3: Store 1 in I & 0 in SUM.
Step 4: IF N MOD I = 0. THEN
   Print I
   SUM = SUM + I
   I = I + 1 and goto Step 5.
   ELSE
   I = I + 1 and goto Step 5.
   END IF
Step 5: IF I < = N. THEN
   goto Step 4.
   ELSE
   Print SUM and goto Step 6.
   END IF
Step 6: Stop

Flowchart