Flow Chart

Flowchart

- A flow chart is a step by step diagrammatic representation of the logic paths to solve a given problem**.** Or,
- A flowchart is visual or graphical representation of an algorithm.

Advantages of Flowcharts

1. The flowchart shows the logic of a problem displayed in pictorial fashion which felicitates easier checking of an algorithm**.**
2. The Flowchart is good means of communication to other users. It is also a compact means of recording an algorithm solution to a problem.
3. The flowchart allows the problem solver to break the problem into parts. These parts can be connected to make master chart.
4. The flowchart is a permanent record of the solution which can be consulted at a later time.

Differences between Algorithm and Flowchart

Algorithm	Flowchart
1. A method of representing the step-by-step logical procedure for solving a problem	1. Flowchart is diagrammatic representation of an algorithm. It is constructed using different types of boxes and symbols.
2. It contains step-by-step English descriptions, each step representing a particular operation leading to solution of problem	2. The flowchart employs a series of blocks and arrows, each of which represents a particular step in an algorithm
3. These are particularly useful for small problems	3. These are useful for detailed representations of complicated programs
4. For complex programs, algorithms prove to be Inadequate	4. For complex programs, Flowcharts prove to be adequate

Symbols used in Flow-Charts

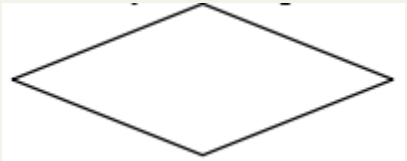
Oval: Rectangle with rounded sides is used to indicate either START/ STOP of the program.

Input and output indicators: Parallelograms are used to represent input and output operations. Statements like INPUT, READ and PRINT are represented in these Parallelograms.

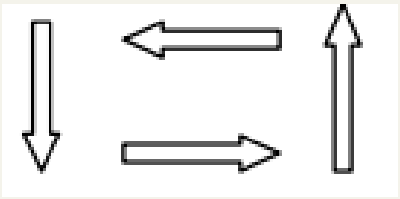
Process Indicators: Rectangle is used to indicate any set of processing operation such as for storing arithmetic operations.

Decision Makers: The diamond is used for indicating the step of decision making and therefore known as decision box.

Decision boxes are used to *test the conditions* or *ask questions* and depending upon the answers, the appropriate actions are taken by the computer.

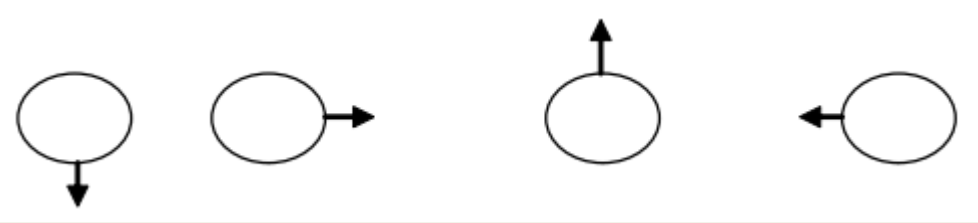


Flow Lines: Flow lines indicate the direction being followed in the flowchart. In a Flowchart, every line must have an arrow on it to indicate the direction.

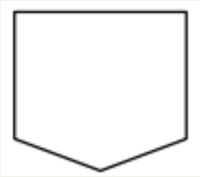


On- Page connectors: Circles are used to join the different parts of a flowchart and these circles are called on-page connectors.

The circle connects sections on the same page.

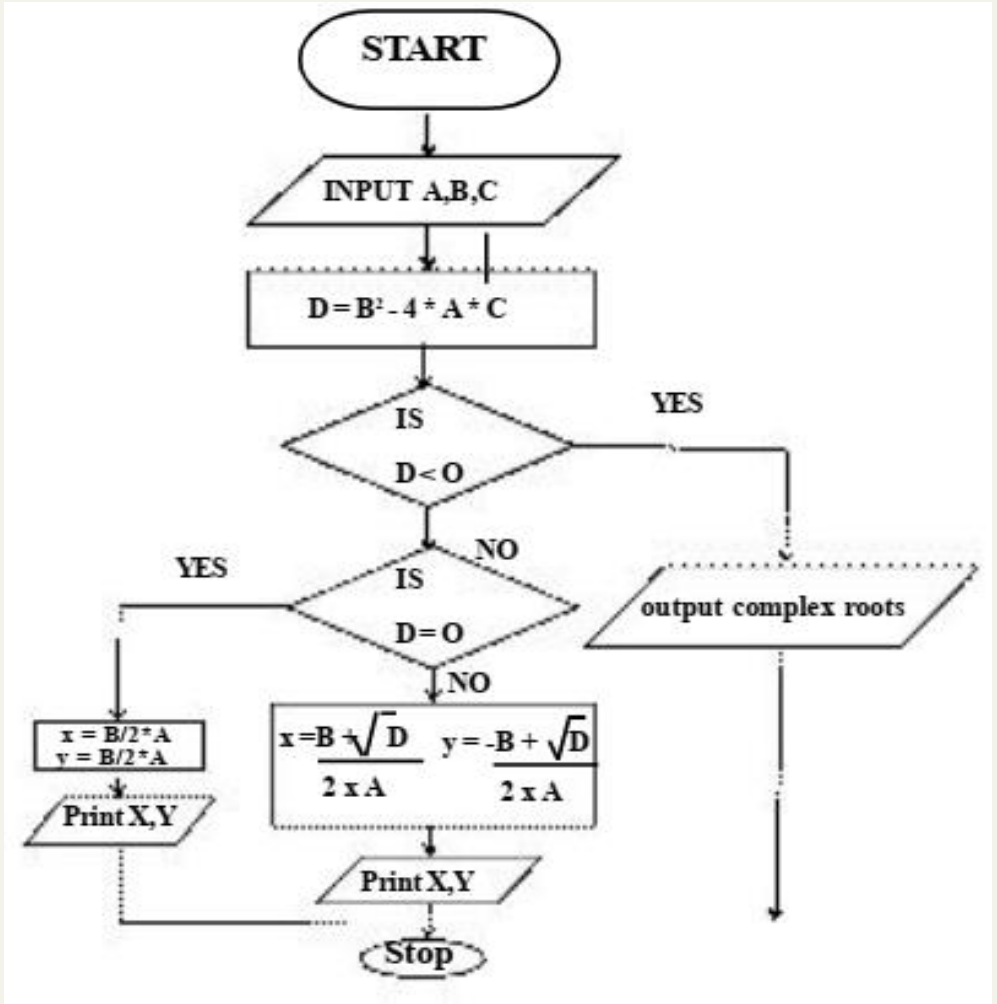


Off-page connectors: This connector represents a break in the path of flowchart which is too large to fit on a single page. It is similar to on-page connector. The connector symbol marks where the algorithm ends on the first page and where it continues on the second.

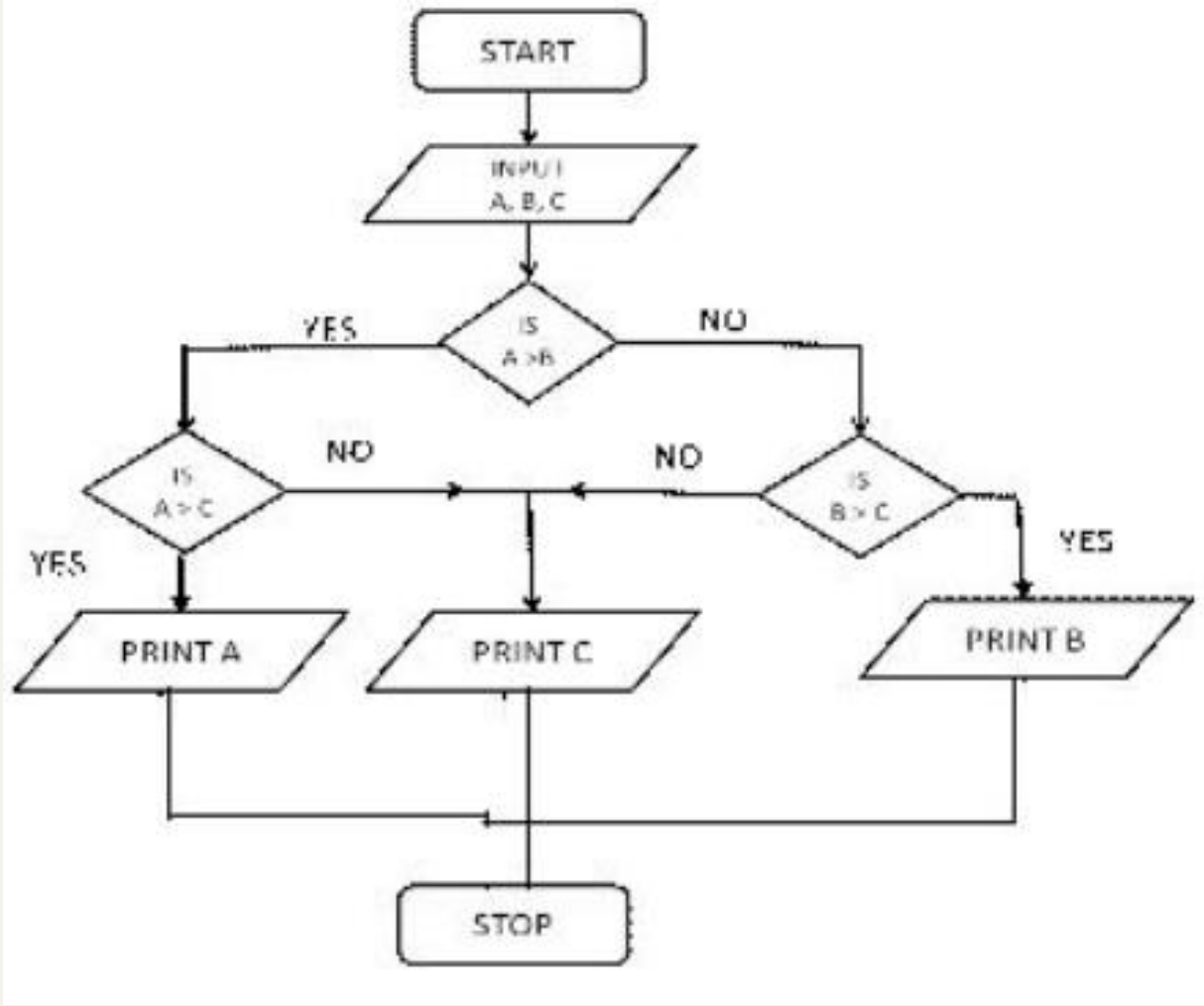


Simple Problems using Flow Chart

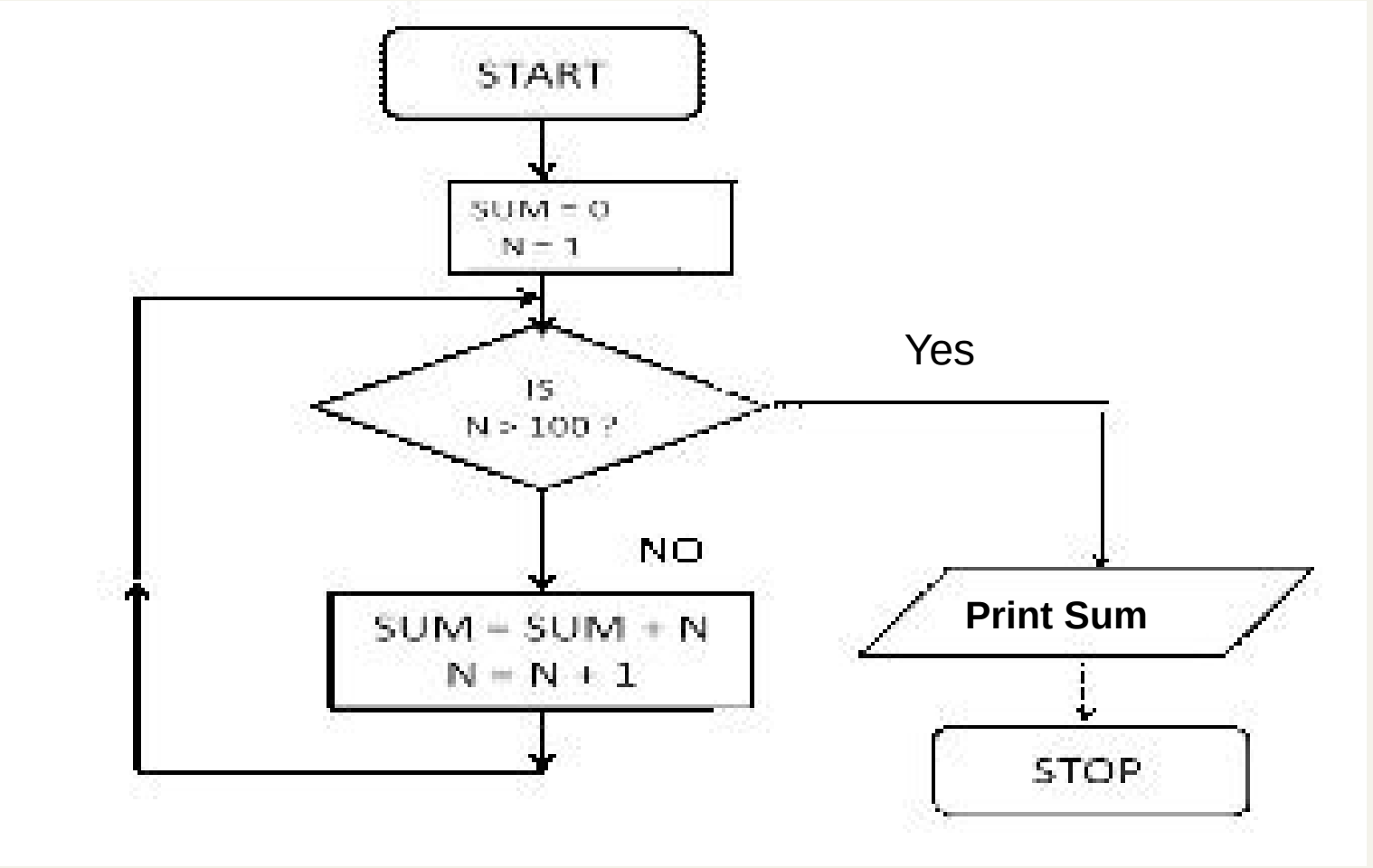
1. Draw the Flowchart to find Roots of Quadratic equation ax2+ bx + c = 0. The coefficients a, b, c are the input data



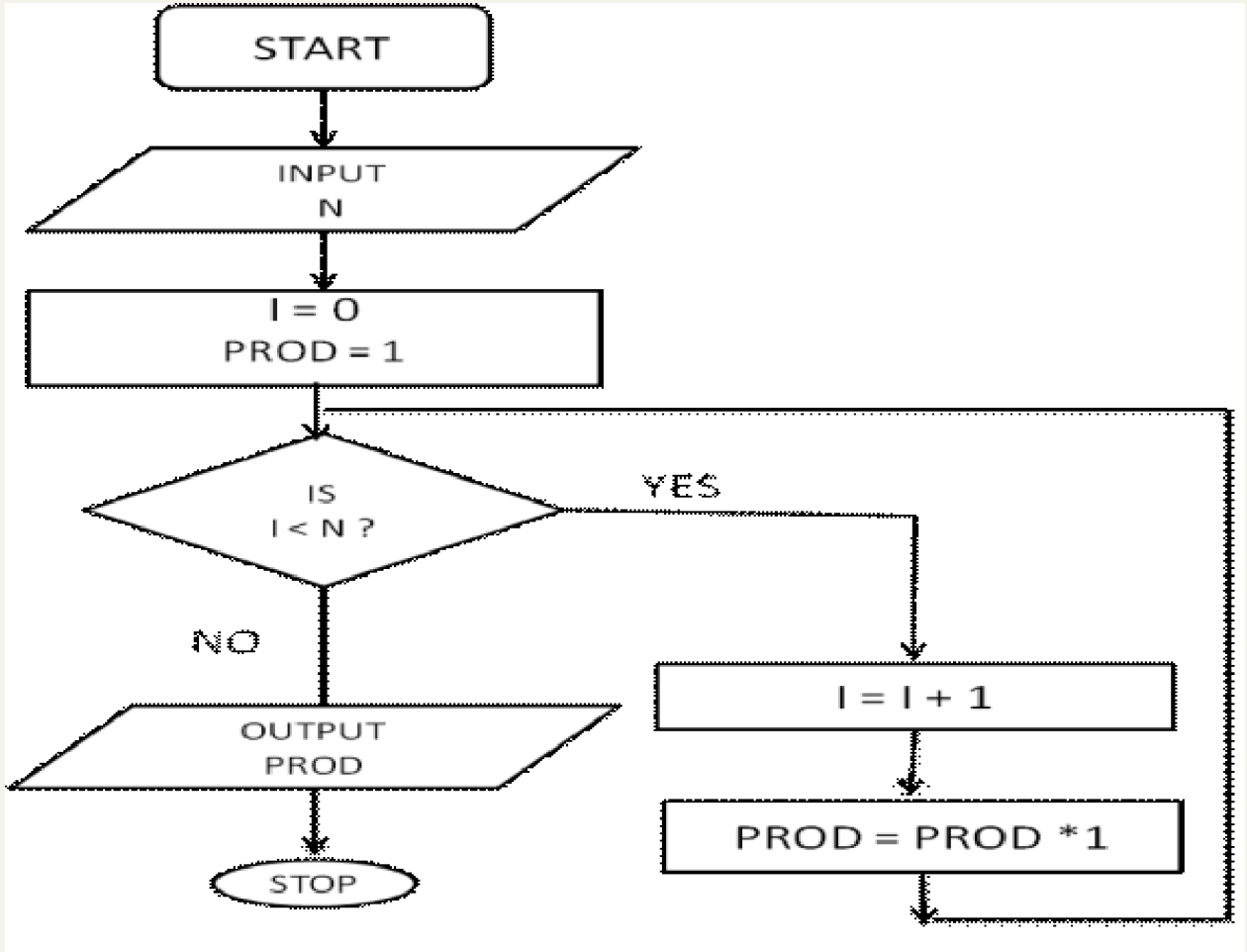
2. Draw a flowchart to find out the biggest of the three unequal positive numbers.



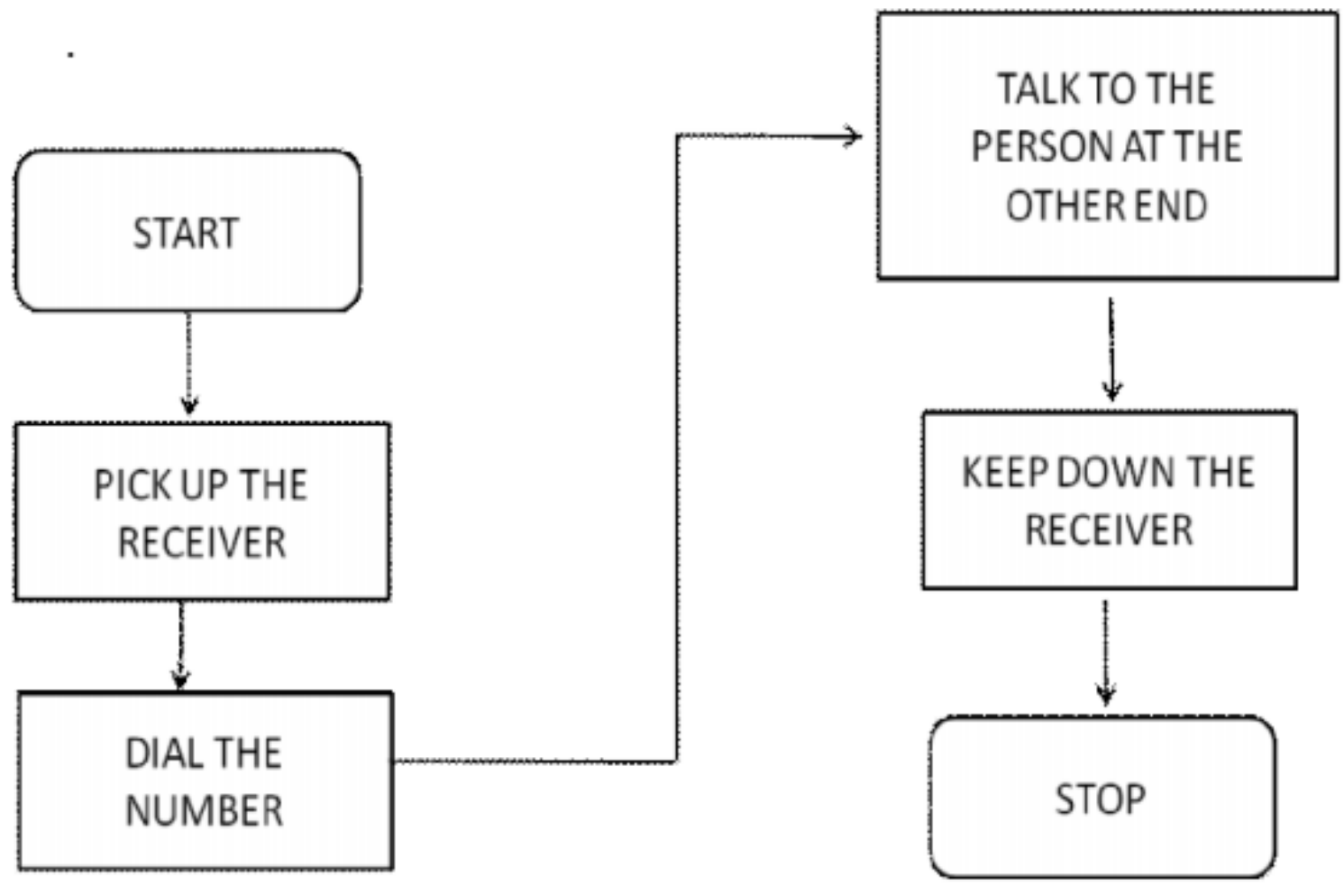
3. Draw a flowchart for adding the integers from 1 to 100 and to print the sum.



4. Draw a flowchart to find the factorial of given positive integer N.



5. Develop a flowchart to illustrate how to make a Land phone telephone call.



6. ABC company plans to give a 6% year-end bonus to each of its employees earning Rs 6,000 or more per month , and a fixed Rs 250/- bonus to the remaining employees. Draw a flowchart for calculating the bonus for an employee.