Notion of an Algorithm:
Algorithm: - Algorithm is a stepwise set of instructions written in English language to perform a specific task.

Characteristic of algorithm:
1. **Unambiguous** – Algorithm should be clear and unambiguous. Each of its steps (or phases), and their inputs/outputs should be clear and must lead to only one meaning.
2. **Input** – an algorithm should have 0 or more well-defined inputs.
3. **Output** – an algorithm should have 1 or more well-defined outputs, and should match the desired output.
4. **Finiteness** – Algorithms must terminate after a finite number of steps.
5. **Feasibility** – should be feasible with the available resources.
6. **Independent** – an algorithm should have step-by-step directions, which should be independent of any programming code.

ADVANTAGES OF ALGORITHM;
• It make logic clear.
• Easy to understandable by user.
• written in natural language.
• Anybody can understand easily.

DISADVANTAGES OF ALGORITHM;
• It takes long time to write algorithm.
• It is neither a computer program nor solve difficulties and errors in the program.

Flowchart: It is graphical representation of algorithm. Different symbols are used to draw flowchart.

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Name</th>
<th>Function</th>
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<tbody>
<tr>
<td></td>
<td>Process</td>
<td>Indicates any type of internal operation inside the Processor or Memory</td>
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<tr>
<td></td>
<td>input/output</td>
<td>Used for any Input / Output (I/O) operation. Indicates that the computer is to obtain data or output results</td>
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<td></td>
<td>Decision</td>
<td>Used to ask a question that can be answered in a binary format (Yes/No, True/False)</td>
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<td></td>
<td>Connector</td>
<td>Allows the flowchart to be drawn without intersecting lines or without a reverse flow.</td>
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<td></td>
<td>Predefined Process</td>
<td>Used to invoke a subroutine or an Interrupt program.</td>
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<td></td>
<td>Terminal</td>
<td>Indicates the starting or ending of the program, process, or interrupt program</td>
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<td></td>
<td>Flow Lines</td>
<td>Shows direction of flow.</td>
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Program: When an algorithm is coded using any programming language (e.g. C), then it is called a program. The program is a set of instructions that can run by the computer.
**Pseudo Code:** It’s simply an implementation of an algorithm in the form of annotations and informative text written in plain English. It has no syntax like any of the programming language and thus can’t be compiled or interpreted by the computer.

Example:

```pseudo
if "1"
    print response
    "I am case 1"
if "2"
    print response
    "I am case 2"
```

**Advantages of Pseudocode**

- Improves the readability of any approach.
- It’s one of the best approaches to start implementation of an algorithm.
- Acts as a bridge between the program and the algorithm or flowchart.
- The main goal of a pseudo code is to explain what exactly each line of a program should do, hence making the code construction phase easier for the programmer.

**Difference between Algorithm and Pseudocode:**

An algorithm is a formal definition with some specific characteristics that describes a process, which could be executed by a Turing-complete computer machine to perform a specific task. Generally, the word "algorithm" can be used to describe any high level task in computer science.

On the other hand, pseudocode is an informal and (often rudimentary) human readable description of an algorithm leaving many granular details of it. Writing a pseudocode has no restriction of styles and its only objective is to describe the high level steps of algorithm in a much realistic manner in natural language.

**Algorithm and flowchart to find number is odd or even:**

Step 1: Start  
Step 2: [ Take Input ] Read: Number  
Step 3: Check: If Number\%2 == 0 Then  
    Print : N is an Even Number.  
    Else  
    Print : N is an Odd Number.  
Step 4: Exit
Algorithm and flowchart for finding the greatest of three numbers:
Step 1: Start
Step 2: Declare variables a, b and c.
Step 3: Read variables a, b and c.
Step 4: If a > b
   If a > c
      Display a is the largest number.
   Else
      Display c is the largest number.
   Else
      If b > c
         Display b is the largest number.
      Else
         Display c is the greatest number.
Step 5: Stop
Algorithm for to find number is prime or not:

Step 1: Start
Step 2: Read number \( n \)
Step 3: Set \( f = 0 \)
Step 4: For \( i=2 \) to \( n-1 \)
Step 5: If \( n \mod i = 0 \) then
Step 6: Set \( f = 1 \) and break
Step 7: Loop
Step 8: If \( f = 0 \) then
  print 'The given number is prime'
else
  print 'The given number is not prime'
Step 9: Stop

Problem solving technique:

1. **Trial and error technique**: It is a way of solving problems through repeated attempts.
2. **Brain storming technique**: It is group activity. Group members are gathering together to discuss a problem and give solutions upon it.
3. **Divide and conquer technique**: Problem is divided into small sub-problems until part of the problem becomes easier to solve.
4. **Solve by analogy**: It looks for existing solution for similar type of problem and apply it on given problem.
5. **Building block approach**: It combines the idea of solving by analogy and divide and conquer.
6. **Merging solution**: Combine existing solutions and merge them on a step by step basis.