SAP ID: 72935
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Date: 20-09-25 **Assignment #1** Day: Saturday

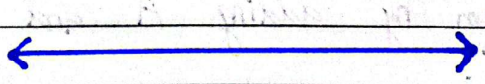
Algorithms and Flowcharts :

Q1 Define: Algorithm. Explain it's importance in problem solving with one simple example.

Algorithm: An algorithm is a step-by-step procedure for solving a problem. It is a set of instructions performed by computer to solve a problem.

Importance: Algorithms are essential in solving problems because they provide a systematic approach to finding solution. They help to break down a problem into simple steps to reduce it's complexity and make it easier to understand.

Example: An algorithm to make a cup of tea includes steps such as boiling water, adding tea leaves and milk, and stirring etc. Each step is clear and follows a logical sequence.



Q2 Define Flowchart. Explain it's advantages in representing algorithms.

Flowchart: Flowchart is a graphical representation of an algorithm or process, using symbols and arrows to represent the flow of data through a processing system.

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Advantages: Since flowchart is used for representing algorithm in pictorial form, it can have many advantages such as :-

(i) Communication: Flowcharts serve as a common language for explaining processes.

(ii) Easy Debugging: Flowcharts help identify logical errors in the algorithm.

(iii) Visual Clarity: Flowcharts provide a clear visual representation of the algorithm, making it easier to understand.

Q3 Write an algorithm and draw a flowchart to calculate the sum of two numbers.

Algorithm:

Step 1: Start
Step 2: Input two numbers and store them in 'A' and 'B'.
Step 3: Calculate Sum by adding 'A' and 'B'.
Step 4: Print 'Sum'.
Step 5: Stop

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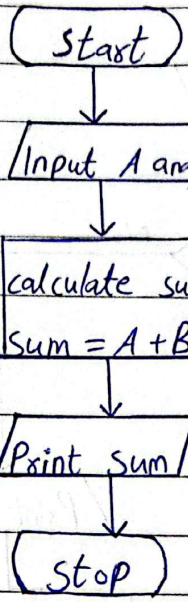

Q4 Write an algorithm and draw a flowchart that:

Takes the marks of a student as input. If marks are 40 or more, it displays "Pass". otherwise, it displays "fail".

Algorithm:

Step 1: Start.
Step 2: Take marks as input and store the value in "marks".
Step 3: If marks >= 40, print "Pass", & go to step 5.
Step 4: If marks < 40, print "Fail".
Step 5: Stop.

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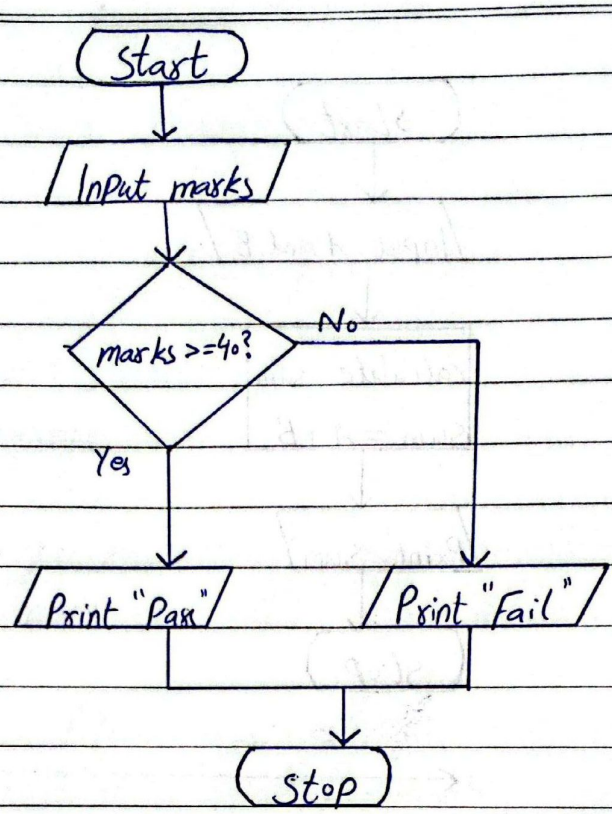

Q5 Write an algorithm and draw a flowchart to find the sum of the first 50 natural numbers.

Algorithm:

Step 1: Start.
Step 2: Initialize count = 0 and Sum = 0.
Step 3: Add count to sum.
Step 4: Take count = count + 1.
Step 5: If count = 50, print 'sum' else goto step 3.
Step 6: Stop.

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