

Certainly! Let's break down **Question 6: Flowchart** in detail.

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## 6. Flowchart in C

A **flowchart** is a **diagrammatic representation** of an algorithm, showing the flow of execution step by step. It consists of **symbols** and **arrows** that define the process.

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### Why Use a Flowchart?

- ✓ **Easy to understand** – Helps visualize logic before coding.
  - ✓ **Error detection** – Identifies problems before implementation.
  - ✓ **Efficient debugging** – Helps trace issues logically.
  - ✓ **Better communication** – Helps explain logic to others.
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### Flowchart Symbols

Symbol	Meaning	Example
Oval	Start / End	Start, Stop
Parallelogram	Input / Output	Enter a number, Print result
Rectangle	Process / Calculation	sum = a + b
Diamond	Decision (Yes/No or True/False Condition)	If num > 0?
Arrow	Flow of Execution	Indicates direction

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### Example 1: Flowchart for Finding the Largest of Two Numbers

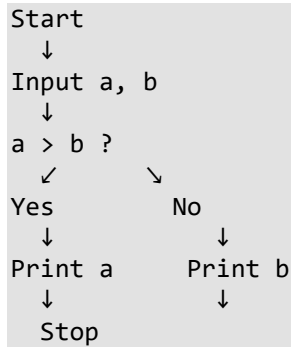
#### Problem Statement

Write a flowchart to **compare two numbers** and print the largest.

#### Flowchart Explanation

1. Start the program.
2. Input two numbers (**a** and **b**).
3. Compare **a** and **b**.
4. If **a > b**, print **a is larger**.
5. Else, print **b is larger**.
6. Stop the program.

## Flowchart Diagram



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## Example 2: Flowchart for Checking Even or Odd Number

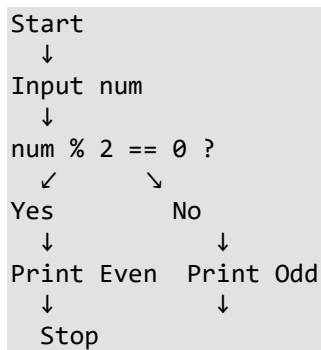
### Problem Statement

Write a flowchart to check if a number is **even** or **odd**.

### Flowchart Explanation

1. Start the program.
2. Input a number (**num**).
3. Check if **num % 2 == 0**.
4. If **true**, print **Even**.
5. Else, print **Odd**.
6. Stop the program.

## Flowchart Diagram



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## Example 3: Flowchart for Calculating Factorial of a Number

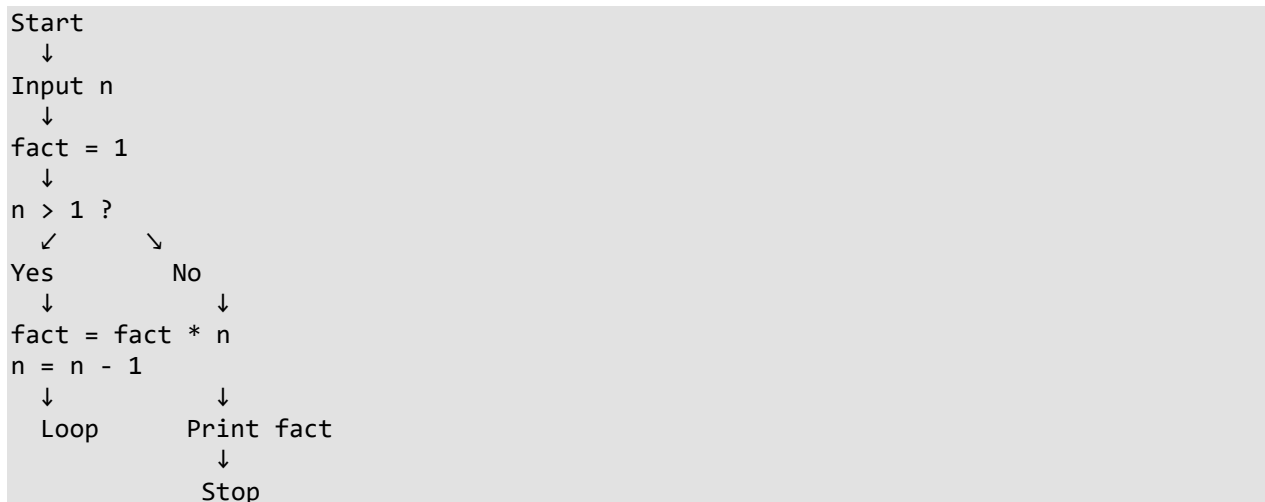
### Problem Statement

Write a flowchart to **calculate factorial** of a number (**n! = n × (n-1) × ... × 1**).

## Flowchart Explanation

1. Start the program.
2. Input a number ( $n$ ).
3. Initialize  $fact = 1$ .
4. Multiply  $fact$  by  $n$ , decrease  $n$  by 1.
5. Repeat until  $n == 1$ .
6. Print the factorial.
7. Stop the program.

## Flowchart Diagram



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## How to Draw a Flowchart?

1. **Understand the problem** – Identify inputs, processing steps, and outputs.
  2. **Use correct symbols** – Ovals for Start/End, parallelograms for I/O, rectangles for processes, diamonds for decisions.
  3. **Connect with arrows** – Show step-by-step logic flow.
  4. **Keep it simple** – Avoid unnecessary complexity.
  5. **Test it** – Walk through the flowchart with test values.
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## Key Takeaways

- ✓ Flowcharts **visualize** program logic before coding.
- ✓ Use **symbols**: Ovals (Start/End), Parallelograms (I/O), Rectangles (Process), Diamonds (Decision).
- ✓ Helps in **debugging, planning, and understanding** algorithms.
- ✓ Always **trace the flowchart manually** before coding.

Would you like a specific flowchart example in **C code**?