

1. THE PURPOSE OF COMPUTER SYSTEMS

The purpose of a computer system is to:

✓ Take input

✓ Process data

✓ Store data and instructions

✓ Produce output

✓ Control all operations

💡 Computers make tasks faster, more accurate and more reliable than doing them by hand.

Examples of uses:

🛒 Online shopping

🏦 Banking

🏥 Healthcare

🎓 Education

✈️ Travel booking

🎮 Gaming

2. THE VON NEUMANN ARCHITECTURE

Most computer systems follow the von Neumann architecture. It has four main components that work together.

INPUT DEVICES

Send data to the computer.

MEMORY

Stores data, instructions and results.

CONTROL UNIT (CU)

Controls and coordinates all operations.

OUTPUT DEVICES

Present results to the user.

ARITHMETIC LOGIC UNIT (ALU)

Performs calculations and logical operations.

How it works (the IPO cycle):

Input → Process (CU + ALU) → Output

Store (Memory)

3. MAIN COMPONENTS		
Input Devices	Devices used to enter data into the computer. Examples: keyboard, mouse, scanner, microphone.	
Memory	Stores data and instructions while they are needed. Includes RAM and cache.	
Control Unit (CU)	Fetches instructions from memory, decodes them and controls all activities in the system.	
Arithmetic Logic Unit (ALU)	Performs arithmetic operations (e.g. +, -, ×, ÷) and logical operations (e.g. AND, OR, NOT).	
Output Devices	Devices used to present information to the user. Examples: monitor, printer, speakers.	

4. EXAMPLE IPO CYCLE

Task: Calculate 7 + 5 and display the answer.

1 Input: The user types 7 and 5.

2 Process: The CPU adds the numbers using the ALU.

3 Store: The result (12) is stored in memory.

4 Output: The answer 12 is displayed on the monitor.

5. KEY TERMS	
Data	Raw facts and figures with no meaning.
Information	Data that has been processed and is meaningful.
Instruction	A command telling the computer what to do.
System	A group of related parts working together.
Fetch	The CU gets an instruction from memory.
Decode	The CU works out what the instruction means.
Execute	The instruction is carried out.

6. KEY TAKEAWAYS

✓ Computer systems follow the IPO cycle.

✓ The von Neumann architecture has four main components.

✓ The CPU (CU + ALU) processes data and controls operations.

✓ Memory stores both data and instructions.

✓ Computer systems are used in many everyday activities.

💡 REMEMBER: Input → Process → Output (IPO)

★ Keep practising and reviewing these facts!

🏆 YOU'VE GOT THIS!