Fundamentals of IT and Programming

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7/4/2025
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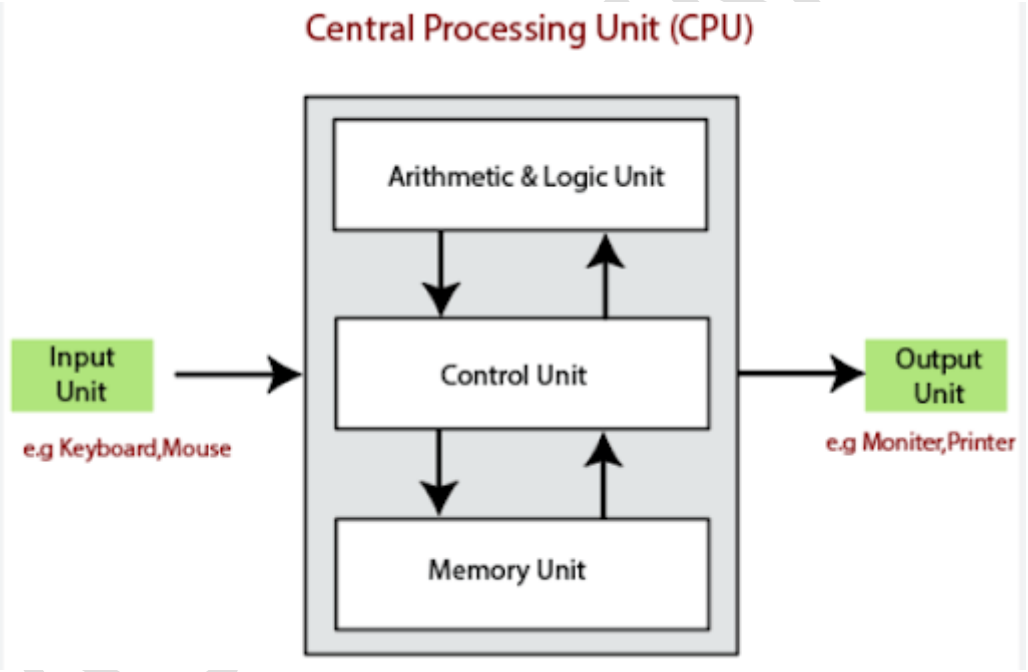
Q1: What are the four fundamental parts of a computer? Explain it with the help of a diagram.

The four fundamental parts of a computer are:

1. **Input Unit**: Devices like keyboard, mouse, etc., used to input data.
2. **Output Unit**: Devices like monitor, printer, etc., used to display or produce results.
3. **Central Processing Unit (CPU)**: The brain of the computer that processes data.



4. **Memory Unit**: Stores data and instructions (RAM, ROM, etc.).

Q2: Classification of computers based on size and capacity.

1. **Supercomputers**: Fastest, used for complex calculations (e.g., weather forecasting).
2. **Mainframe Computers**: Large-scale data processing (e.g., banks).
3. **Minicomputers**: Mid-sized for small organizations.
4. **Microcomputers**: Personal computers (e.g., desktops, laptops).

Q3: Computer generations and technologies used.

- **1st (1940s–50s)**: Vacuum tubes, machine language.
- **2nd (1950s–60s)**: Transistors, assembly language.
- **3rd (1960s–70s)**: Integrated circuits (ICs), high-level languages.
- **4th (1970s–present)**: Microprocessors, GUIs, networks.
- **5th (Future)**: AI, quantum computing.

Q4: Volatile vs. Non-Volatile Memory

Volatile (e.g., RAM)	Non-Volatile (e.g., ROM, SSD)
Loses data when power is off	Retains data without power
Faster access	Slower access
Used for temporary storage	Used for permanent storage

Q5: System vs. Application vs. Open Source Software

System Software (e.g., OS)	Application Software (e.g., MS Word)	Open Source (e.g., Linux)
Manages hardware	Performs user tasks	Source code is modifiable

System Software (e.g., OS)	Application Software (e.g., MS Word)	Open Source (e.g., Linux)
Essential for operation	Task-specific	Free to use/distribute

Q6a: Steps to create a file in MS Word about yourself:

1. Open MS Word → New Blank Document.
2. Type a paragraph (e.g., "My name is...").
3. Click **File → Save As →** Name file "yourself.docx".

Q6b: Formatting steps in MS Word:

- **Font Style**: Select text → Home tab → Choose font (e.g., Arial).
- **Font Size**: Select text → Home tab → Adjust size (e.g., 12).
- **Font Color**: Select text → Home tab → Font Color (e.g., Red).
- **Highlighting**: Select line → Home tab → Text Highlight Color (Yellow).

Q7: Steps to create 'ms_word' file:

1. Open MS Word → New Document.
2. Type the given text (e.g., "MS Word is a widely used...").
3. Use bullet points for the list.
4. Save as **'ms_word.docx'**.

Q8: Steps for equations in MS Word:

Open MS Word → Go to **Insert → Equation**.

$x_2 + y_2 = 30$
$z^2 + Q^2 = 50$
$\Delta z + B^2 = x_2 + y_2$

1. Save as **'equations.docx'**.

Q9: Convert text to table:

1. Type text (e.g., "Name, Age, City" in separate lines).
2. Select text → **Insert → Table → Convert Text to Table**.
3. Save as **'text_to_table.docx'**.

Q10: Insert a table in MS Word:

1. Open MS Word → **Insert → Table** → Select rows/columns.
2. Enter data → Save.

Q11–Q13: Excel Tasks

1. **Q11**: Create a worksheet named 'book1.xlsx' with sample data (e.g., student marks).
2. **Q12**: Use formulas:
3. `=SUM(C2:C11)`, `=AVERAGE(C2:C11)`, `=MAX(C2:C11)`, `=MIN(C2:C11)`.
4. **Q13a**: Adjust row/column width via **Format** in the Home tab.

1. **Q13b**:
2. **Absolute Reference**: `=$A$1` (fixed).
3. **Relative Reference**: `=A1` (changes when copied).

Q14–Q15: PowerPoint Steps

- **Q14a**: Tools: Themes, Transitions, Animations, Slide Master.
- **Q14b**:

1. Open PowerPoint → Blank Presentation.
2. Save as **'Lab1.pptx'**.

- **Q15**:
  - Add title slide (college name).
  - Insert bullet list, Excel sheet (**Insert → Object**), clipart (**Insert → Pictures**).
  - Add slide show effects (**Transitions** tab).

Q16: Machine Language vs. High-Level Language

Machine Language (Binary)	High-Level Language (e.g., Python)
Hard to read/write	Easy to understand
Directly executed	Requires compiler/interpreter

Q17: C Data Types

- `int`: Integers.
- `float`: Decimal numbers.
- `char`: Single characters.
- `double`: High-precision decimals.

Q18: Output of Expressions

a) `X = 20/5*2 + 30 - 5` → `4*2 + 25` → **33**

b) `Y = 30 - (4 + 6) + 10` → **30**

c) `Z = 80/10 - 2 + 10` → **16**

Q19: Syntax in C

```
if (condition) { code; } else { code; }

for (int i=0; i<n; i++) { code; }

while (condition) { code; }

do { code; } while (condition);
```

Q20: Program Outputs

a) **"IMS Ghaziabad"** (prints once).

b) **"IMS Ghaziabad"** twice.

c) **"Largest number is 100"**.