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**PROGRAM:** BSCS

**COURSE TITLE:** DATABASE SYSTEMS (LAB-1)

**SEMESTER:** 4

**SAP ID:** 56270

**TASK 1**

**Q:** Write a **detailed explanation** of how the Fetch-Decode-Execute cycle works.

**Ans: Fetch-Decode-Execute Cycle:**

The Fetch-Decode-Execute cycle is the process the CPU follows to run instructions. First, the CPU **fetches** an instruction from memory. Then, it **decodes** the instruction to understand what action is needed. Finally, it **executes** the instruction, such as performing a calculation or moving data. This cycle repeats continuously for every instruction in a program.

**TASK 2**

**Q:** Use a simple instruction as an example and describe each step.

**Ans: Fetch-Decode-Execute Cycle Example:**

Suppose the instruction is **“Add 5+3”**.

1. **Fetch:** The CPU fetches the instruction from memory.
2. **Decode:** The CPU understands that it needs to perform addition.
3. **Execute:** The CPU adds 5 and 3, which gives 8, and stores the result.

This process repeats for every instruction in the program.

**TASK 3**

**Q:** Explain the role of **PC, AR, IR, AC and DR in your own words.**

**Ans: Role of PC, AR, IR, AC, and DR:**

* **PC (Program Counter): Keeps track of the next instruction to be executed.**
* **AR (Address Register): Holds the memory address of the data or instruction.**
* **IR (Instruction Register): Stores the current instruction being executed.**
* **AC (Accumulator): Stores the result of calculations and operations.**
* **DR (Data Register): Holds the data fetched from memory or the data to be stored.**

**TASK 4**

**Q:** What is the function of the Arithmetic Logic Unit (ALU**)** in CPU operations?

How does ALU interact with registers and memory?

**Ans: Function of ALU and Its Interaction with Registers and Memory:**

The **Arithmetic Logic Unit (ALU)** is a part of the CPU that performs **mathematical operations (like addition and subtraction)** and **logical operations (like AND, OR, and NOT).** It takes input from **registers,** performs the operation, and stores the result back in the **Accumulator (AC)** or other registers. The **ALU can also interact with memory** to fetch data or store results.

**TASK 5**





