**1. Which addressing mode is typically the fastest and involves only CPU registers?**

Answer

Register addressing mode is fastest because it does not need any memory access

**2. What addressing mode uses a constant or literal value directly within the instruction?**

answer

Immediate addressing mode .for example mov ax,5

**3. When would you use direct addressing mode in x86 assembly?**

Answer when accessing a specific memory location directly.for example mov ax,1234h

**4. How does indirect addressing mode provide flexibility in accessing data?**

Answer Indirect addressing mode provides flexibility in accessing data by allowing memory locations to be specified dynamically using registers.

**5. Which registers are commonly used in indirect addressing mode?**

Answer BX, SI, and DI. These registers hold the memory address that points to the actual data.

**6. What addressing mode is ideal for initializing registers with specific values?**

Answer Immediate Addressing Mode is ideal for initializing registers with specific values since it directly loads a constant value into a register

. Example:mov ax,5

Mov bx,8

**7. In indexed addressing mode, what two components are combined to form the effective address?**

Answer

the two components combined to form the effective address are a base address and an index register. This mode is often used for accessing elements in an array. Example

Mov ax,[array+si], where SI acts as the index.

**8. Why is indirect addressing mode useful for accessing dynamic data locations?**

Answer because it allows memory locations to be determined at runtime.

**9. Which addressing mode is particularly suitable for navigating arrays and data structures?**

Answer Indexed Addressing Mode since it enables access to elements using an index register

**10. What is the main benefit of using register addressing mode?**

Answer Since the CPU operates directly on registers, there is no need for additional memory accesses, reducing instruction execution time