<div dir="rtl">أسئلة واجوبة لمادة الاسيمبلي</div>

-The number of Address Bits **depends on the amount** of memory we want to handle, a 16-bit processor can access memory of up to **64KB (2^{16}).**

-If we want to handle memories of more than 64KB we need **additional bits**.

-In the 8086, all registers are **16 bits** wide.

-the **address bus** requires **20-bit** wide.

-In order for an address of 20 bits in width to be composed in code, the CPU automatically combines the **contents of two registers** for all memory access.

-The two registers that combine to make up the 20-bit address are called generally **Segment Registers** and **Offset Registers**.

-There are **four Segment Registers (CS, SS, DS, and ES).**

-Physical Address: It is **the 20-bit address** that actually put on the **address bus (in 8086)**

-Physical address has a **range of 00000h – FFFFFh.**

-The physical address or real address refers to the actual **position in the memory**.

-Physical address allows access to data in the main memory.

-Logical Address: A logical address or virtual address is used as a reference to access the physical address.

-The logical address **consists** of **segment address** and **offset address**.

-Logical address = Segment addr : Offset addr.

-Segment Address: It is a **16-bit address** of the segment block.

-The segment address, located within one of the segment registers, defines the beginning address of any 64K-byte memory segment.

-Offset Address : It is a **location within 64K byte** segment range.

-offset address has a range of 0000h – FFFFh

-Segment address indicates **Segment Number**.

- Offset address indicates **the location of byte or word** within the segment.

-The logical address of an **instruction consists CS (Code Segment) and IP(instruction pointer).**

-Logical Address in Code segment is represented by using segment address in CS register and Offset Address in IP register as follows:

Segment addr. : Offset addr.

Segment Address 16 bit CS : IP Offset Address 16 bit