Part I | Answer the following questions:

Question #1: Why do I/O port addresses always **even**? For example: F0H, F2H, F4H...FEH. Limit answer to a maximum of five (5) sentences.

- I/O port addresses are always even because many microprocessors use only the even addresses to access 8-bit ports in their I/O address space. This is done for hardware simplicity—using even addresses helps align the data and control signals more efficiently within the address bus. Odd addresses are simply ignored because the low-order address line (A0) is often used to choose between the lower and upper byte, making even addresses natural for 8-bit operations. This convention helps avoid data alignment problems. Using only even addresses also reduces the risk of errors in communication between devices and the processor.

Question #2: What is the command byte if the 8255 will be programmed as PORTA as input, PORTB as output, PC0-PC3 as input, PC4-PC7 as output and all ports operate in Mode 0? Write also the code to program the 8255 using the determined command byte.

- The command byte for programming the 8255 with PORTA as input, PORTB as output, PC0-PC3 as input, PC4-PC7 as output, all in Mode 0, is 9AH (10011010 in binary). To program the 8255, load 9AH into the accumulator and output it to the control port, for example:

```
MVI A, 9AH  ; Load command byte 9AH into the accumulator
OUT 83H     ; Send command byte to 8255 control port at address 83H
```