Tutorial – 05 (8255A and 8259A)

(1) Write initialization instructions for the 8255A to set up

       Port A as an output port in Mode 0.

       Port B as an output port in Mode 1 for interrupt I/O.

       Port C_U as an output port in Mode 0.

(2) Write initialization instruction for the 8259A Interrupt controller to meet the following specifications:

       (1) Interrupt vector address: 2090H

       (2) Call address interval of 8 bits.

       (3) Nested Mode

(3) Specify the handshake signals and their functions if Port A of the 8255A is set up as an output port in Mode 1.

(4) Port A of the 8255A is set up in Mode 1, and the status word is read as 18H. Is there an error in the status word?

(5) Following figure shows the schematic of an interrupt-driven system using the 8259A. Four sources are connected to the IR lines of the 8259A: Emergency signal, Keyboard, A/D Converter and Printer. Of these, the Emergency Signal has the highest priority and the Printer has the lowest priority. Explain the following initialization instruction in reference to following figure in detail.

Initialization Instructions

DI

MVI A, 76H ; ICW1

OUT 80H   ; Initialize 8259A

MVI 20H   ; ICW2

OUT 81H   ; Initialize 8259A