2011

M.Sc.

3rd Semester Examination

ELECTRONICS

PAPER—ELC-301

Full Marks : 50

Time : 2 hours

The figures in the right-hand margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

Illustrate the answers wherever necessary.

(Microprocessor and its Applications)

Answer *Q. No. 1* and any *three* questions from the rest.

1. (a) Why are tri-state devices essential in a bus-oriented system ?

(b) Calculate the physical address if the segment address is 1005H and the offset address is 5555H.

(c) If the 8085 μP adds 87H and 79H, specify the content of the accumulator and the status of S, Z and CY flags

(d) Explain the meaning of SPHL and XTHL instruction of 8085 μP .

(e) How using PUSH and POP instructions a delay routin can be simulated ? 2×5

2. (a) Mention the different machine cycles of 8085 μP Explain the machine cycles of the instruction STA 2065 H when it is executed.

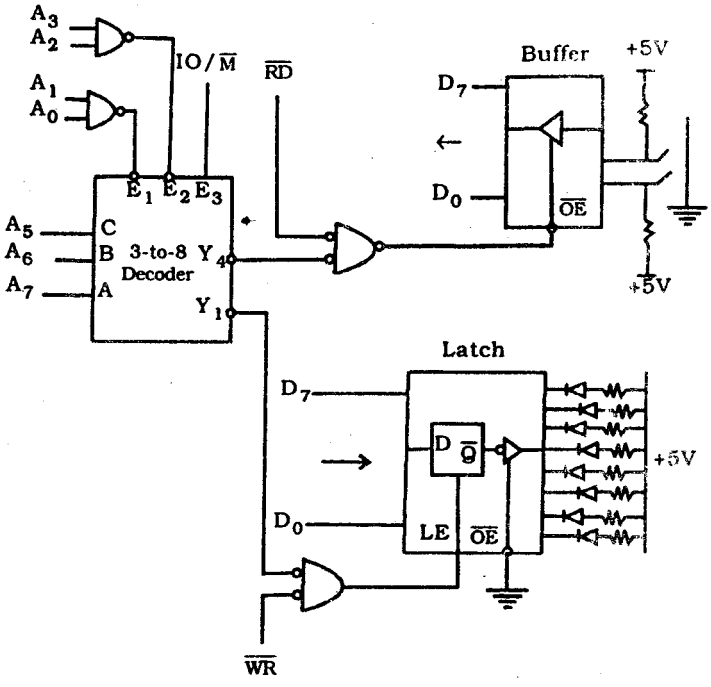
(b) Draw the op-code Fetch machine cycle of 8085 μP an discuss (2+2)+(3+3)

3. (a) How the four control signals $\overline{IOR}$, $\overline{IOW}$, $\overline{MEMR}$ an $\overline{MEMW}$ signals can be generated ? Draw the circuit

b) Why the above signals are required to be generated ? Explain 5+5

4. (a) Compare between memory mapped I/O and I/O mapped I/O.

(b) In the figure given below :



(i) Identify the addresses of the input and output ports.

(ii) Write instruction to read input port (above figure) and continue to read it until both switches are closed (by an operator). When both switches are closed, turn on all LEDS.

3+(2+2+3)

5. (a) What is a stack? Is it necessary to initialize th stack pointer while writing a program? Explain wit an example.

   (b) Write a program to store contents of flag register a memory location 9500 H and reset all the flags.

   (c) If CALL and RET instructions were not there i assembly language of 8085 μP, will it be possible t write a subroutine for 8085 μP? Explain.

(1+1+2)+3+3

6. (a) Draw the functional block diagram of a USART 8251

   (b) Explain the operation of the transmitter section o 8251.

   (c) Specify the mode word format required to initializ 8251 in asynchronous mode for the followin conditions :

      (i) Band rate factor 1x;

      (ii) Character length 1 Byte;

      (iii) Even parity;

      (iv) 1 stop bit. 4+4+2

[Internal Assessment — 10]