M.Sc. 3rd Semester Examination, 2010

ELECTRONICS

(*Microprocessor and its Applications*)

(Theory)

PAPER—EL-2101

Full Marks : 50

Time : 3 hours

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

The figures in the right-hand margin indicate marks

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

Illustrate the answers wherever necessary

1. Answer *all* questions : 2 x 5

(*a*) What do you understand by the memory mapped I/O and I/O mapped I/O ?

(*b*) Draw the block diagram of the built-in clock generator of 8085 μP.

(*c*) Explain the difference between HLT and HOLD states.

(*d*) How the vector address of a software interrupt is determined ?

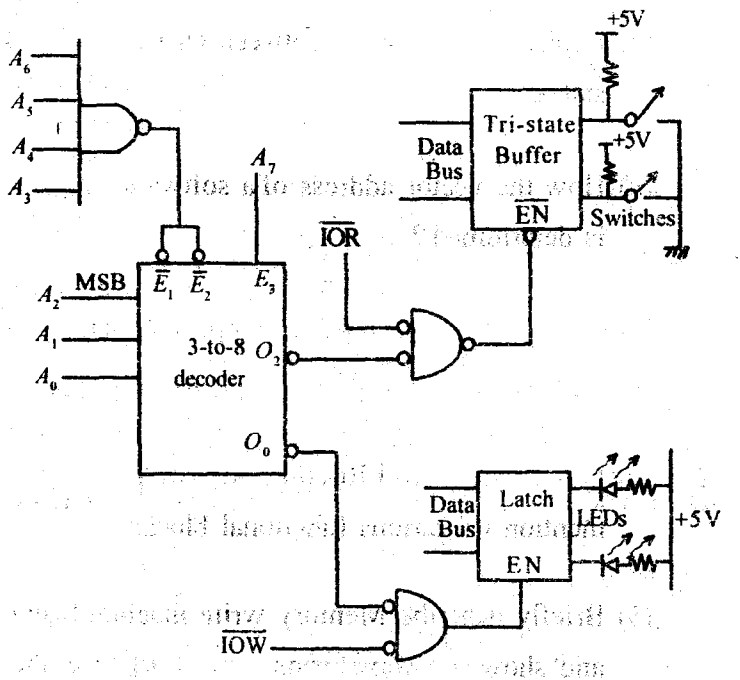
(*e*) Can an input port and an output port have the same address ? Justify.

2. (*a*) Draw the architecture of 8085 μP and mention its various functional blocks.

(*b*) Briefly describe Memory write machine cycle and show the waveforms. (4 + 2) + (2 + 2)

3. (*a*) Analyse the interfacing circuit given below. Identify the addresses of the input and output ports and explain the circuit operation.

(*b*) Write an assembly language program for reading and displaying binary data for the circuit.



(3 + 1 + 1 + 3) + 2

4. (*a*) Explain how the contents of accumulator and flag register can be stored at 2000 H and 2001 H memory locations respectively.

(*b*) Write a program to count number of 1 and 0 bits in a register. Assume *B* register contains data, and store number of 1 in *H* register and number of 0 in *L* register. 3 + 7

5. (*a*) Draw the block diagram of 8255 A. Discuss the control word format in the BSR mode.

(*b*) Write down the mode 0 control words for the following *two* cases :

(*i*) Port A = Input port, Port B = not used, Port C_u = Input port and C_l = Output port.

(*ii*) Port A = Output port, Port B = Input port, Port C = Output port. (4 + 2) + (2 + 2)

6. (*a*) What is meant by RS232C standard ? How RS232C is interfaced with TTL ?

(*b*) Distinguish between IEEE-488 standard and IEEE-488 bus. How many lines comprise the IEEE-488 bus ? Discuss. $\left(2\frac{1}{2}+2\frac{1}{2}\right)+(2+1+2)$

[*Internal Assessment* : 10 Marks]