[06 – 3112]

III/IV B.E. DEGREE EXAMINATION.

First Semester

Electrical and Electronics Engineering

LOGIC DESIGN AND MICROPROCESSORS

(Effective from the admitted batch of 2006–2007)

(Common with M.S. EEE)

Time : Three hours   Maximum : 70 marks

Question No. 1 is compulsory and answer any other FOUR questions.

1. Answer the following :

   (a) List the operating modes of 8253 timer.

   (b) Compare serial and parallel communication.

   (c) Define the term propagation delay time of a flip-flop.

   (d) What is the function of Accumulator?

   (e) Explain the difference between machine language and assembly language.

   (f) What is non-maskable interrupts?

   (g) What is the use of USART?

2. (a) Reduce the following Boolean Expressions :

    (i) $AB + A(B + C) + B'(B+D)$

    (ii) $A + B + A'B'C$

    (iii) $A'B + A'BC' + A'BCD + A'BC'D'E$.

   (b) Perform the following using BCD arithmetic.

    (i) $7129_{10} + 77711_{10}$

    (ii) $8124_{10} + 8127_{10}$

3. (a) Compare synchronous and Asynchronous.

   (b) Draw the schematic circuit of Toggle-flip-flop (T) Give its truth-table. Justify the entries in the truth-table. (NAND gates only)

4. (a) Write a brief note on Architecture of PLDs gates.

   (b) For the given 3-input, 4-output truth table of a combinations circuit, tabulate the PAL programming table for the circuit.

Input			Output			
x	y	z	A	B	C	D
0	0	0	0	1	0	0
0	0	1	1	1	1	1
0	1	0	1	0	1	1
0	1	1	0	1	0	1
1	0	0	1	0	1	0
1	0	1	0	0	0	1
1	1	0	1	1	1	0
1	1	1	0	1	1	1

5. (a) What is Bus? Describe the bus architecture of 8085.

   (b) Draw the pie diagram of 8085 and explain the functions of each pin.

6. (a) Compare peripheral I/O mapped I/O and memory mapped I/O.

   (b) Draw the timing diagram of the memory write cycle and memory read cycle.

7. (a) Draw the block diagram of 8255 and explain its various modes. Also write down the control word for various combinations.

   (b) What are volatile and non-volatile memory?

8. (a) Explain the basic steps involved in an A/D converter.

   (b) Discuss the interfacing of matrix keyboard with microprocessor in detail.

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