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Sixth Semester B.E. Degree Examination, May/June 2010
Microprocessors

Time: 3 hrs.

Max. Marks:100

*Note: Answer any FIVE full questions, selecting
at least TWO questions from each part.*

PART – A

- 1 a. Explain in brief the functions of 'execution unit', with a neat block diagram. (07 Marks)
 b. Explain: i) How physical address is generated by 8086?
 ii) 16 byte paragraph boundary.
 iii) Segment override prefix. (06 Marks)
 c. Explain with at least two examples, the register indirect addressing and register relative addressing. Identify the addressing modes for the following instructions: (07 Marks)
 i) MOV AX, BP [100] ii) XCHG num[BX + SI], SP iii) MOV CL, 'A'
- 2 a. What are the differences between 8086 and 8088 processors? (04 Marks)
 b. What is wrong, if any, in the following instructions? Correct them and explain the operation performed by these instructions. (06 Marks)
 i) ADD [23A5H], AL ii) INC [BX] iii) LEA SI, offset num
 c. Write an ALP to add N one byte BCD numbers, store the result in memory location. (10 Marks)
- 3 a. What do you mean by 'assembler directives'? Explain the following assembler directives:
 i) ALIGN 16 ii) PROC ENDP iii) ASSUME iv) EXTRN...PUBLIC (05 Marks)
 b. Explain any four conditional branch instructions which check the carry and zero flags simultaneously. (06 Marks)
 c. Write an ALP to convert a four digit ASCII coded hexadecimal number to its binary equivalent using SEGMENT.....ASSUME directives. (09 Marks)
- 4 a. What are the differences between a MACRO and a PROCEDURE? Write an ALP that displays a carriage return and a line feed using a MACRO. (10 Marks)
 b. Write an ALP to find the GCD of four numbers using a procedure. (10 Marks)
- PART – B**
- 5 a. Describe the purpose of interrupt vector table and the condition (s) which causes the microprocessor to perform the following types of interrupts:
 type 0, type 1, type 2, type 3 and type 4 (07 Marks)
 b. Write an interrupt procedure that sets the trap flag to enable trap. (04 Marks)
 c. Write a program that outputs characters to a printer using INT 17h interrupt. (09 Marks)
- 6 a. Explain the different types of key switches used in a computer. (05 Marks)
 b. Draw a block diagram of 7 - segment LED display which is interfaced to a microprocessor using dedicated display controller. (10 Marks)
 c. Explain the different types of floating point numbers stored in the memory by the coprocessor. (05 Marks)
- 7 a. Convert the following:
 i) Decimal 1259.125 to single precision number ii) Decimal -29.563 to long real form.
 iii) Short real 010111010110011100....0 to decimal. (09 Marks)
 b. Write an ALP to find the roots of a quadratic equation $x^2 + 3x + 2 = 0$. (11 Marks)
- 8 Write short notes on : a) Minimum and maximum modes of 8086 ; b) Universal serial bus (USB) ; c) Special registers of 80386 ; d) Pentium processor. (20 Marks)

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
 2. Any revealing of identification, appeal to evaluator and /or equations written eg, 42+8 = 50, will be treated as malpractice.

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Section 2: Methodology

Section 3: Results

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