

**FACULTY OF ENGINEERING**

**B.E. 3/4 (ECE) II-Semester Main Examination, April 2006**

**MICROPROCESSORS & MICROCONTROLLER BASED SYSTEM DESIGN**

Time : Three Hours]

[Maximum Marks : 75

**Note:—** Answer all questions from Part A and any FIVE questions from Part B.

**PART—A**

(Marks : 25)

1. What is the function of TF in 8086 ?
2. State the addressing mode and the result of executing the following instruction :—  
MOV AX, 4[BX], [SI].
3. Give a method of generating chip selects for even and odd addressed byte ports interfaced to 8086.
4. Draw a neat 8086 bus cycle timing diagram for Memory Read.
5. What is the purpose of Instruction Q in 8086 ? How is speed up achieved through pipelining ?
6. Give the addresses for SFRs, TMOD and TCON in 8051. What are these functions used for ?
7. What is the purpose of EA pin in 8051 ?
8. What is RS-232 standard ? Give the signal levels.
9. Give the programming model of 80386.
10. What are the functions of 'BIST' in Pentium ?

**PART—B**

(Marks : 5×10=50)

11. (a) What is the difference between minimum mode and maximum mode operations of 8086 ?  
(b) Give a schematic for minimum mode 8086 system.
12. (a) List the architectural differences between 8086 and 80386.  
(b) What is wrong with the following instructions ? Correct them and specify the operation :
  - (i) MOV [BX], [DI]
  - (ii) MOV BL, CX
  - (iii) MOV DS, SS

13. (a) List five addressing modes of 8086 with suitable examples.
- (b) Suppose  $EAX = 00001000H$ ,  $EBX = 00002000H$  and  $DS = 0010H$ . Determine the address accessed by the following instructions :
- $MOV, ECX, [EAX + EBX]$
  - $MOV, [EAX + 2 * EBX], CL$ .
14. A 12-bit ADC is to be interfaced to 8086 system. Design a suitable scheme and give all details. Write an ALP to read a set of samples from an input analog source and store it in memory.
15. (a) Give the architecture of 8051.
- (b) It is required to interface  $32 K \times 8$  RAM to 8051. Give a suitable scheme.
- (c) Write an 8051 ALP to store a constant into (30H – 34H) of RAM using stack operations.
16. (a) What are assembler directives ? List five assembler directives and explain.
- (b) Compare Pentium features with 80386 features.
17. Write short notes on :—
- Assemblers
  - Data Flow architectures
  - Memory Management in 8086.