B.Tech.
(SEM. IV) THEORY EXAMINATION 2013-14
MICROPROCESSORS

Time : 3 Hours
Total Marks : 100

Note :- Attempt all questions. Each question carries equal marks.

1. Answer any two parts of the following : \((2\times10=20)\)
   (a) Indicate the source and destination of data for each of the following cycles:
      (i) Memory Write
      (ii) Memory Read
      (iii) I/O Write
      (iv) I/O Read.
   (b) What do you mean by "Instruction Pipe Line" and "Arithmetic Pipeline"? Explain with a suitable example.
   (c) Discuss the following sections of CPU 8085A:
      (i) Interrupt control
      (ii) Serial Input/Output control

2. Answer any two parts of the following : \((2\times10=20)\)
   (a) Explain the following addressing modes of 8085:
      (i) Immediate Addressing
(ii) Implicit Addressing
(iii) Register Indirect Addressing
Also mention their important.

(b) Explain the following instruction set of 8085:
(i) POP PSW
(ii) XTHL
(iii) SPHL
(iv) PUSH PSW
(v) CMP M
(vi) CPI data
(vii) XRA M
(viii) DAA
(ix) INR M
(x) ADD M

(c) Explain what operation is performed on execution of the following instructions of 8085?
(i) SUI data
(ii) RAR
(iii) CNC addr
(iv) RST 5
(v) PUSH PSW
(vi) XTHL
(vii) OUT Port
(viii) RIM
(ix) DAA
(x) XCHG.

3. Answer any two parts of the following: \((2 \times 10 = 20)\)
(a) Write an assembly language program to divide a 16-bit number by an 8-bit number.
(b) Explain the following addressing modes of 8086:
(i) Register Relative Addressing
(ii) Based Indexed Addressing
(iii) Relative Based Indexed Addressing
(iv) Immediate Addressing
(v) Register Addressing
(c) Describe the operations performed by the following instructions:
(i) AND BX, [SI]
(ii) SHR BYTE PTR [0300], CL
(iii) ADD AX, [SUM]
(iv) AAA
(v) MUL DX
(vi) IMUL CL
(vii) CBW
(viii) ROR AX, CL
(ix) DIV BYTE PTR [SI] + 0020
(x) SBB BX, CX.

4. Answer any two parts of the following: (2x10=20)
(a) What is result of executing the following instructions of 8086?
(i) MOV AL, AI H
(ii) CBW
(iii) CWD
(b) Write a short note on the following:
(i) Assembler Level Program (ASMs)
(ii) Memory Space
(c) What do you mean by “Low Level” and “High Level Language Programming” in microprocessors? Also mention its advantages and disadvantages.
5. Answer any two parts of the following: \(2 \times 10 = 20\)

(a) Explain the following:

(i) INTEL-8259—Programmable Interrupt Controller (PIC)
(ii) INTEL-8257—Programmable DMA Controller
(iii) INTEL-8255—Programmable Peripheral Interface (PPI)
(iv) INTEL-8253/8254—Programmable Timer/Counters.

(b) Show the interfacing of 8355 with 8085 µP using memory mapped I/O Scheme.

(c) What are I/O ports? What are interfacing devices? Why are they required? Also mention its limitations and advantages.