(Following Paper ID and Roll No. to be filled in your Answer Book)

PAPER ID :121408 **Roll No.** [ ][ ][ ][ ][ ][ ][ ][ ][ ][ ]

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 :   **(2×10=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 :   **(2×10=20)**

    (a) Explain the following addressing modes of 8085 :

    (i)   Immediate Addressing

(ii) Implict Addressing

(iii) Register Indirect Addressing

Also mention their importances.

(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 : (2×10=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 : (2×10=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 :   **(2×10=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.