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

PAPER ID : 110408 Roll No. | | | | | | | | | | |

B.Tech.

(SEM. IV) THEORY EXAMINATION 2013-14

INTRODUCTION TO MICROPROCESSOR

Time : 3 Hours *Total Marks : 100*

Note :– Attempt **all** questions.

1. Attempt any **four** parts of the following : **(4×5=20)**
   (a) What is a Microprocessor ? Differentiate between Microprocessor and Microcontroller.
   (b) Explain the evolution of microprocessors.
   (c) Explain bus structure of the microprocessor.
   (d) Explain data transfer schemes of microprocessor.
   (e) Explain the memory address range of 1k memory and explain the changes in the address if the hardware of the $\overline{CS}$ line is modified. The total available address lines for the addressing are 16.
   (f) How does the microprocessor work ? Explain in detail.
2. Attempt any **four** parts of the following : **(4×5=20)**
   (a) Explain the pin configuration of 8085 MPU with neat diagram.
   (b) Explain the Arithmetic Logical Unit (ALU) and register array of 8085 microprocessor.
   (c) Specify the register contents and flag status as the following instructions are executed :

SUB A	initial	A	B	S	Z	CY
MOV B,A	contents	XX	XX	X	X	X
DCR B	of register					
INR B						
SUI 10H						
HLT						

(d) Write an instruction to display the content of accumlator to 3500 H memory location. Draw the timing diagram as the instruction is executed.

(e) Explain the operation of each instruction with example :

(i) POP

(ii) DAA

(iii) DAD

(iv) SBI

(v) RET

(f) Write an 8085 assembly language program for the multiplication of two 8 bit numbers.

3. Attempt any **four** parts of the following : **(4×5=20)**

(a) Explain the interrupts of 8086 MPU ?

(b) Define the addressing modes of 8086 microprocessor. Explain each addressing mode with example.

(c) Define the segmentation and pipelines in 8086 microprocessor.

(d) Draw the timing diagram of read machine cycle in maximum mode.

(e) Explain the action performed by each of the instructions given below :

SBBaX, [5678H]

SBB [3598H], di

SBB [658EH], [bx]

SBB dx, si

Give the example of Loop and String instruction of 8086 microprocessor and its addressing mode.

4. Attempt any **two** parts of the following : **(2×10=20)**

(a) Write down the assembly language program for the subtraction of two 16 bit numbers in 8085 MPU.

(b) In the following program, explain the range of bytes that will displayed at best 2.

```
        MVI A, byte1
        MOV B, A
        SUI 50 H
        JC DELETE
        MOV A,B
        SUI 80 H
        JC G0
DELETE: XRA A
        OUT Port1
        HLT
GO :    MOV A,B
        OUT Port2
        HLT
```

(c) Write down a program for BCD to seven segment code conversion in 8086 microprocessor.

5. Attempt any **two** parts of the following : **(2×10=20)**

(a) Describe 8255 (PPI) architecture ? Explain its different modes ?

(b) Describe the organization and modes of operations of 8237 DMA controller.

(c) Explain 8259 (programmable interrupt controller) in detail ? Explain the different priority modes on 8259 (PIC) ?