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

PAPER ID : 2119   Roll No. ☐☐☐☐☐☐☐☐☐☐

B.Tech.

(SEM. V) THEORY EXAMINATION 2012-13

MICRO-PROCESSORS

Time : 2 Hours   *Total Marks : 50*

Note : *(1) Attempt all questions.*

   (2) Assume necessary data if required.

1. Attempt any **TWO** parts :   **(5×2=10)**

   (a) Explain the purpose of $IO/\overline{M}$, S_1 and S_0 signals of 8085. List out the information provided by the various combinations of these signals in a table.

   (b) Explain the function of Instruction Register and Program Counter of 8085.

   (c) It is required to connect 32 KB of memory to 8085. Given ICs are one 8 KB EPROM IC and three 8 KB SRAM ICs. Draw the address map and show the address decoding logic.

2. Attempt any **TWO** parts :   **(5×2=10)**

   (a) Discuss the differences between I/O mapped I/O addressing and Memory mapped I/O addressing, in detail. What is the maximum number of input devices that can be connected to 8085 in memory mapped I/O ?

(b) Two numbers 35H and –A0H are stored in memory. After the subtraction of these two numbers in 8085, determine the status of various flags and Accumulator.

(c) (i) Write an 8085 assembly language program to determine the 2's complement of an 8-bit number without using any logical instruction. Store the result in memory.

(ii) Explain the register indirect addressing with examples.

3. Attempt any **TWO** parts : (5×2=10)

(a) For the following 8085 instructions, explain the operation performed, name the machine cycles taken for execution, addressing mode of instruction and flags affected :

(i) SHLD 5000H

(ii) INR M

(iii) ADD B

(b) What is meant by the software interrupts and why they are used ? List out all the software interrupts of 8085 and give their vector addresses. How DI instruction affects these interrupts ?

(c) Draw the machine cycle diagram for the instruction INR B and explain the various activities shown by this diagram.

4. Attempt any **TWO** parts : (5×2=10)

(a) Two 8-bit BCD numbers are stored in memory. Write an 8085 assembly language program to perform the BCD subtraction of these two numbers and store the result back into memory.

(b) A table of 20 8-bit data is stored at memory location 5000H. Draw the flow chart and write an 8085 assembly language program to count the even numbers and odd numbers in this table. Store the count in memory.

(c) Write a subroutine to multiply two 8-bit numbers. The input to this subroutine is given through memory locations and 16-bit result should be stored in memory. It is required that execution of this subroutine should not affect the programming environment of caller program.

5. Attempt any **TWO** parts : (5×2=10)

(a) Explain how asynchronous behaviour of Bus Interface Unit and Execution Unit improves the throughput of 8086.

(b) Interface two 7-segment display digits to 8085 and write a program to display last two digits of your roll number.

(c) Show the connection diagram of 8259 with 8085. List out the sequence of operation performed by 8259 after an interrupt request occurs.