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Fourth Semester B.E. Degree Examination, Dec. 07 / Jan. 08

Microprocessors

Time: 3 hrs.

Max. Marks:100

Note : Answer any FIVE full questions.

1.
 - a. With the help of neat block diagram, explain the architecture of Intel 8085 Microprocessor. (14 Marks)
 - b. Describe the function of following pins of 8085:
i) HOLD ii) READY iii) ALE. (06 Marks)
2.
 - a. Explain the various addressing modes of 8085 giving examples for each. (10 Marks)
 - b. Explain the operational difference between the following pairs of instructions:
i) SPHL and XTHL ii) CALL addr and JMP addr iii) LHLD and SHLD addr
iv) DAD rp and DAA v) INR A and ADI 01H. (10 Marks)
3.
 - a. Write an equivalent single instructions for the following program operations:
i) MVI L, 00H
MVI H 90H
MOV A, M
ii) LDA addr
MOV L, A
LDA addr+1
MOV H, A (04 Marks)
 - b. Write an assembly language program to convert a 2 digit BCD number stored at memory location X, to binary number to be stored in memory X+1. (08 Marks)
 - c. Write an 8085 ALP subroutine to produce a delay of 0.5 sec. Consider the operating frequency of 8085 as 2.5 MHz. (08 Marks)
4.
 - a. Write a program to add two 2 digit BCD numbers stored at memory locations X and X+1. Store the result in successive memory locations. (08 Marks)
 - b. Draw and explain timing diagram of the instruction LHLD addr. (12 Marks)
5.
 - a. Explain and compare memory mapped I/O scheme and I/O mapped I/O scheme. (06 Marks)
 - b. Interface the following devices to 8085:
16 kbyte of EPROM using two 8 kbyte EPROMS and 4 kbyte of RAM using two 2 kbyte RAMs. Show memory map for the scheme and all control signals in the interface. Use contiguous address for ROM and RAM. (10 Marks)
 - c. If (SP) = 8000 H, (HL) = 2030 H, sketch the stack memory with SP, initially and after the instruction PUSH H. (04 Marks)
6.
 - a. Describe the interrupt system of 8085. Explain the use of instruction SIM and RIM in implementing serial communication. (10 Marks)
 - b. What is DMA operation? Explain the features and operation of DMA controller 8257 with a block diagram. (10 Marks)
7.
 - a. With the help of block diagram, briefly discuss the features of 8255, along with modes of operation. (10 Marks)
 - b. An array of 8 LED's are interfaced to 8085 through port A of 8255. Write an ALP to switch ON and OFF all LED's with a delay. (06 Marks)
 - c. Write a program to output logic 1 on PC3 of 8255 using BSR mode. (04 Marks)
8.
 - a. Explain the features any three programming modes of 8253 PIT. (10 Marks)
 - b. With neat block diagram explain features and operation of 8259 interrupt controller. (10 Marks)