

M.C.A.

FIRST YEAR SECOND SEMESTER - 2018

MICROPROCESSORS AND ASSEMBLY LANGUAGE

Time : Three hours

Full Marks : 100

Answer any five questions.

1. Draw the functional block diagram of 8085 (No need to describe). Describe the difference between RAR and RRC with proper example. Describe the bit-wise implementation of 8085 flag register.
10+5+5 = 20
2. Explain the masking/unmasking and enabling/disabling of 8085 maskable interrupts. Calculate the time delay for a decimal counter, assuming a value of ABH in register C.
10+10 = 20
3. What is partial decoding? How MEMW[^] and IOR[^] signals are generated? Draw and describe timing diagram of STA 8000H instruction.
5+5+10=20
4. Describe how program execution speeds up in 8086 microprocessor. If CS register contains 2050H and IP register contains 3BA2H, what will be the physical address of the instruction to be fetched? Write an assembly language program for storing 8 Fibonacci series numbers in consecutive memory location starting from 5500H in 8085.
5+5+10=20
5.
 - a. Interface an 8K RAM chip beginning at address 2500H using a suitable decoder. Explain its address decoding technique and describe its RAM address range. Assume required signals and pins.
10
 - b. Explain the following instructions with proper example.
i. DAA ii. XCHG iii. SHLD iv. SIM v. CMOV M.
5X2 = 10
6.
 - a. Write an assembly language program to count the number of occurrences of BCD zero in memory locations 8000H to 800AH. Store the count in decimal in memory location 8050H.
10
 - b. Assume that CALL 2088H is stored in memory location 2090H. The content of SP is 2093H. Explain the sequences of event that takes place when this CALL instruction is executed.
10
7. What do you mean by peripheral mapped I/O and memory mapped I/O? Explain the general steps to interface a Successive-Approximation A/D converter AD558 with 8085 microprocessor. Draw the schematic and write the 8085 opcodes for interfacing 8085 microprocessor with A/D converter using status check.
4+6+10=20
8. Write brief and short notes on any two:
 - a. 8257 DMA Controller
 - b. Subroutine parameter passing techniques
 - c. Vectored Interrupts
 - d. RIM and SIM instructions.
10 X 2 = 20