

(This Question paper contains 2 printed page)

Roll No. _____

S.No. of Question Paper : 2007 L
Name of Department : Physics
Name of Course : B.Sc. Hons. - (Physics)_NEP: UGCF-2022
Name of the Paper : Microprocessor
Semester : VI- Semester (DSE Paper)
Unique Paper Code : 2223010022
Question paper Set number : SET A

Duration: 2 hours

Maximum Marks: 60

Instructions for Candidates:

- (a) Attempt four questions in all.
- (b) Question no. 1 is compulsory.
- (c) All questions carry equal marks.
- (d) Symbols have their usual meanings.

1. Attempt any five questions: (5x3=15)

- (a) What are the key components of a microprocessor?
 - (b) Draw schematic diagram of a 1KB R/W memory interfaced with a microprocessor having 16 address lines spanning the address range from 0000H to 03FFH. How many address lines are used for selecting the chip?
 - (c) Give the status of carry flag and zero flag after the instruction CMP B is executed, if
 - (i) data in accumulator > data in register B
 - (ii) data in accumulator = data in register B
 - (iii) data in accumulator < data in register B
 - (d) Identify the addressing modes of the following 8085 microprocessor instructions:
 - (i) MVI B, CDH
 - (ii) MOV B, A
 - (iii) STA 2000
 - (e) How many address lines are required to address 256KB memory locations? If address of first memory location of a 1KB memory chip is 2000H, what is the address of last memory location of the chip?
 - (f) What happens when a microprocessor receives an interrupt signal? List the hardware interrupts in order of their priority in 8085 microprocessor.
- 2. (a)** An instruction (MOV C, A) with the Hex-code 4FH is stored in the memory location 2006H. Draw timing diagram for the execution of the instruction.
- (b)** If the clock frequency is 5MHz, determine the time taken by the microprocessor to execute the instruction MOV C, A.

(10,5)

3. (a) Draw and explain the complete Bus structure (Address Bus, Data Bus, Control Bus) of 8085 microprocessor.

(b) What is the function of accumulator, program counter, stack pointer and Flag register in 8085 microprocessors? Show the bit position of each flag in the Flag register.

(7,8)

4. (a) How many M-cycles are required to implement CALL instruction. Give the sequence of events in each machine cycle. How much time is required to execute CALL instruction (18 T-states) if the clock frequency of 8085 microprocessor is 5MHz.

(b) Write an assembly language program for 8085 micro-processor to multiply two eight-bit numbers 20H and 03H, using a subroutine.

(10,5)

5. (a) Draw pin-out diagram of 8085 microprocessor.

(b) Write a short note on primary and secondary memory highlighting their differences and giving examples of each.

(7,8)