

U.G. 5th Semester Examination - 2021

COMPUTER SCIENCE

[HONOURS]

Discipline Specific Elective (DSE)

Course Code : COM.SC-H-DSE-L-501

(Microprocessor)

Full Marks : 60

Time : 2½ Hours

The figures in the right-hand margin indicate marks.

Candidates are required to give their answers in their own words as far as practicable.

GROUP-A

1. Answer any **ten** of the following questions :

2×10=20

- a) Compare CALL and JMP instruction of 8085.
- b) Why DMA data transfer mode is faster than others?
- c) Differentiate between LDA and LDAX.
- d) Explain the working principle XRA M instruction with suitable example.
- e) Differentiate between SRAM and DRAM.
- f) State the usages of tri-state devices.
- g) What do you understand by memory map of a chip?

- h) What is absolute decoding?
- i) The memory map of a 4 Kbyte memory chip begins at location from 2089 H. Specify the address of the last memory location on the chip.
- j) What is the necessity of temporary registers of 8085?
- k) What is the use of flag register in microprocessor?
- l) What are the functions performed by timing and control unit of a microprocessor?
- m) What is the purpose of the READY signal in 8085?
- n) After the execution of CMP A instruction, what will be the content of flag register?
- o) What is subroutine?

GROUP-B

2. Answer any **four** questions: 5×4=20

- a) Discuss the various addressing modes of 8085 with suitable examples.
- b) Explain the interfacing working principle of seven segment display with microprocessor.
- c) How much time it will take to execute the instruction IN 80H when the 8085 microprocessor is running at 3 MHz Clock? What

[Turn Over]

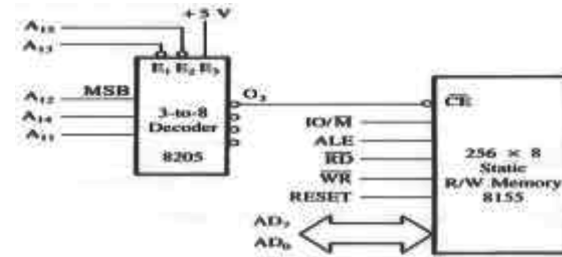
are the functions of 'Instruction Decoder and Machine Cycle Encoder' of 8085? 2+3

- d) Discuss about the signals used by 8086 in maximum mode.
- e) How physical address is calculated for an instruction in 8086, describe with example.
- f) What are the use of SIM and RIM instruction in 8085. State the function of SOD line of 8085. What are the instructions needed to write logic 1 in SOD line? 2+1+2

GROUP-C

- 3. Answer any **two** questions: 10×2=20
 - a) i) Explain the necessity of In-Service Register (ISR) and Interrupt Mask Register(IMR) of 8259A. What is the use of cascade Lines of 8259A?
 - ii) Explain how data is transferred when 8237(DMA Controller) operates in Master Mode. (4+2)+4
 - b) i) List the status and control signals which are used for generating *memory read*, *memory write*, *I/O read* and *I/O write* signal of 8085 and mention their values in each case.

ii) Consider the following memory interfacing circuit:



Explain the memory interfacing decoding logic and also state the memory address range of 8155 shown in the figure.

4+6=10

- c) i) Explain how CALL instruction works.
- ii) Consider the following set of instructions of 8085:
 XRAA
 MVI B, 4AH
 SUI 4FH
 ANAB
 HLT
 Specify the flag status after execution of each instruction. Calculate the total time required for executing the entire program.

6+4=10

- d) i) What are the different type of interrupts available in 8086?
- ii) Write an Assembly Language Program to add the contents of a 10 word array using 8086.
- iii) What is the function of the pin $\overline{\text{BHE}}$ in 8086? $4+4+2=10$
