

NRT/KS/19/2154

Bachelor of Science (B.Sc.) Semester-V Examination

FUNDAMENTALS OF MICROPROCESSOR

Optional Paper—2

(Electronics)

Time : Three Hours]

[Maximum Marks : 50

N.B. :— (1) **ALL** questions are compulsory and carry equal marks.

(2) Draw neat diagram wherever necessary.

EITHER

1. (A) What is bus ? Explain different types of buses used in 8085 processor ? Why address and data bus is time-multiplexed in 8085 microprocessor ? How are address and data lines demultiplexed in 8085 microprocessor based system ? 1+3+2+4

OR

- (B) Draw the block diagram of 8085 microprocessor. Explain the function of each block in brief. 10

EITHER

2. (A) What is addressing mode ? Illustrate various addressing modes of 8085 microprocessor. 10

OR

- (B) Write assembly language program to find 2's complement of :

(1) 8-bit number

(2) 16-bit number. 5+5

EITHER

3. (A) What is stack ? How is stack initialized ? Explain why stack memory is reserved at higher end of user's memory. Explain the instruction PUSH rp and POP rp with suitable example. 1+1+2+6

OR

- (B) State the function performed by following instructions :

(1) IN Port address

(2) HLT

(3) RST-n

(4) NOP

(5) XTHL

Explain the CALL-RET structure of subroutine. 5+5

EITHER

4. (A) Explain the need of interfacing in microprocessor based system. State the need of data transfer scheme. List various data transfer schemes. Explain interrupt driven data transfer scheme. 3+1+2+4

OR

(B) Explain control word formats for IO-mode and BSR mode. Determine the control word for the following configuration of 8255 :

Port A — Output port, mode-1

Port B — Output port, mode-0

Port C_{Lower} (PC₀, PC₁, PC₂) = Output port

Remaining pins of Port C_{Upper} = Output port.

8+2

5. Solve any **TEN** :

(A) What is machine cycle of microprocessor instruction ?

(B) Write bit pattern of flags in flag register of 8085.

(C) State the function of SP register of 8085.

(D) Let the content of HL-Pair be FFFF H. What will be the content of HL-Pair after executing INX H instruction ?

(E) State any two instruction which set the zero flag.

(F) State bytes required and T-state taken for the execution of MOV A, M instruction.

(G) What is subroutine ?

(H) List any two return instruction.

(I) How many bytes required for jump instruction in 8085 ?

(J) What is DMA ?

(K) State the significance of control word register of 8255.

(L) What is PPI ?

1×10