Roll No.

Total Pages: 03

BT-4/M-24

44159

MICROPROCESSORS AND MICROCONTROLLERS EC-210A

Time: Three Hours]

[Maximum Marks: 75

Note: Attempt *Five* questions in all, selecting at least *one* question from each Unit. All questions carry equal marks.

Unit I

Draw the architecture of 8085 and 8086 microprocessors.
 Explain in detail the various tasks performed by BIU and EU.

EXAMKIT

2. Draw and discuss the typical maximum mode 8086 system with a read-and-write cycle timing diagram in maximum mode.

15

Unit II

3. (a) Draw the pin diagram of 8051 and explain the function of each pin in detail.

- (b) Explain the internal RAM organization of 8051 with a suitable diagram.
- 4. (a) Explain the function of each flag in PSW. What are the applications of carry and overflow flags? 5
 - (b) Discuss the function of each bit of TCON and TMOD register in 8051.

Unit III

- 5. (a) Assume that XTAL = 11.0592 MHz, and write an assembly program to generate a square wave of 10 kHz frequency on pin P1.0.
 - (b) Calculate the delay for the following program;
 Assume the frequency of 11.0592 MHz:

 Machine Cycle

DELAY: MOV R2, #200

GO: NOP 1

NOP 1

NOP 1

DJNZ R2, GO 4

6. (a) Using contents of various registers given below.

10

Offset(displacement)-4000H. [AX]-1500H, [BX]-1000H, [SI]-2500H, [DI]-3500H, [BP]-4000H, [SP]-

5000H, [CS]-0000H, [DS]-1000H, [SS]-2500H, [IР]-6000H

Form effective addresses for Register relative, Register indirect, Based Indexed, Relative based Indexed and Direct addressing mode.

(b) Write an ALP to perform multiplication and division of two 8-bit data 21H and 17H in 8051.

Unit IV

7. Design an interface between 8086 CPU and two chips of 4K × 8 RAM and two chips of 4K × 8 ROM. Select the starting address of ROM and RAM memories suitably.

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8. Explain the operation and interfacing diagram of LCD with 8051. Also developing an assembly program to display the message 'HELLO' at the beginning of the first line.