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(Revision-2015/19)

A23 - 02813

Reg.No............................

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DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/MANAGEMENT/ COMMERCIAL PRACTICE, APRIL- 2023

MICROCONTROLLERS AND INTERFACING

[Maximum marks: 100]   (Time: 3 Hours)

PART – A

Maximum marks : 10

I   (Answer *all* the questions in one or two sentences. Each question carries 2 marks)

1. Name the two 16-bit registers available in 8051 microcontroller.

2. Give the on-chip RAM and ROM sizes of 8051.

3.   What is the use of SWAP instruction?

4. Name the IC used for interfacing keyboard/display with 8051.

5. Define step angle.   (5 x 2 = 10)

PART – B

Maximum marks : 30

II (Answer any *five* of the following questions. Each question carries 6 marks)

1. Compare microprocessors and microcontrollers.

2. Sketch the format of PSW register and explain the functions of each bit.

3. Write an 8051 assembly language program to multiply two 8-bit numbers stored at memory locations 4200H and 4201H and store the result at 4202H and 4203H.

4. Draw the block schematic to show the pins of 8279.

5. Explain the functions of 8051 SFRs associated with serial communication.

6. List the basic modes of operation of 8255 with their features.

7. Define ADC and DAC. List their applications.   (5 x 6 = 30)

PART – C

Maximum marks : 60

(Answer one full question from each unit. Each full question carries 15 marks)

UNIT –I

III. (a) Sketch the internal architecture of 8085 microprocessor.   (10)

(b) List the interrupts of 8051. (5)

OR

IV. (a) Explain the organization of data RAM of 8051 with a neat figure. (8)

(b) Prepare short notes on: (i) I/O ports of 8051 (ii) 8051 timers. (7)

UNIT-II

V. (a) Explain any four addressing modes used in 8051 with examples. (8)

(b) List and explain arithmetic instructions of 8051. (7)

OR

VI. (a) Write an 8051 assembly language program to convert the given BCD number

into its hexadecimal equivalent. (8)

(b) List and explain the conditional jump instructions of 8051. (7)

UNIT-III

VII. Describe the architecture of 8259 Programmable Interrupt Controller with the aid

of a neat block diagram. (15)

OR

VIII.(a) What is the chip 8251 used for? List its important features. (7)

(b) Draw the block diagram of 8251. (8)

UNIT-IV

IX. (a) What is LM35? List its features. (7)

(b) Draw the pin diagram of ADC 0804. (8)

OR

X.(a) Explain the interfacing of DAC with 8051 microcontroller. (10)

(b) What is a stepper motor? List its different types. (5)

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