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Reg.No.............................
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DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/MANAGEMENT/ COMMERCIAL PRACTICE, APRIL - 2025

MICROCONTROLLER 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. List any two special function registers of 8051.

2. What is the content of accumulator after executing the instruction mov A, #40H?

3. List any two interrupt registers of IC 8259.

4. Define step angle.

5. List any two logical instructions.   (5 x 2 = 10)

PART – B
Maximum marks: 30

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

1. Explain the stack operation in 8051.

2. Briefly explain the transmission and reception of serial data.

3. Explain the key board debounce and control of IC 8279.

4. List the commands in LCD.

5. Describe data pointer of 8051.

6. What are look up tables? Give any two applications.

7. Illustrate seven segment display.

(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) Explain the architecture of microcontroller 8051.   (8)

        (b) Explain the internal RAM organisation in 8051.   (7)

OR

IV. (a) Draw and explain the pin details of 8051 microcontroller. (8)

(b) Describe Timer control/Mode operation of 8051 Microcontroller. (7)

UNIT – II

V. (a) Describe the addressing modes of 8051. (8)

(b) Explain the arithmetic instructions of 8051. (7)

OR

VI. (a) Write an Assembly language program to add two 8 bit numbers stored in 4500h and 4501h and store the result in 4502h and carry in 4503 h. (8)

(b) Write the mnemonic and description of any seven data transfer instructions. (7)

UNIT - III

VII. (a) Draw and explain the architecture of IC 8255. (8)

(b) Describe the pin details of IC 8259. (7)

OR

VIII. (a) Draw and explain the architecture of IC 8251. (8)

(b) Explain the keyboard section of 8279. (7)

UNIT – IV

IX. (a) With Diagram explain Interfacing of 8051 with ADC. (8)

(b) Explain the interfacing of 4x4 keyboard with 8051. (7)

OR

X. (a) Describe the interfacing of Stepper motor with 8051. (8)

(b) Describe the interfacing of 8051 with Temperature sensor IC, LM 35. (7)