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* questions in one or two sentences. Each question carries *2* marks)

1. Compare 8051 and 8031 microcontrollers

2. State the use of DPTR register in 8051

3. Differentiate MOV and MOVC instructions

4. Define baud rate in serial communication

5. Define keyboard debouncing.   (5 x 2 = 10)

PART-B
[Maximum Marks: **30**]

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

1. Explain briefly the internal RAM organization of 8051.

2. Draw the IP special function register of 8051 and explain each bit.

3. Explain any three addressing modes of 8051 with example.

4. Distinguish between timer function and counter function in 8051.

5. Discuss the format of PCON register.

6. Explain the interfacing of DAC with 8051.

7. Explain how DC motor speed is controlled using 8051.   (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. Draw the pin diagram of 8051 and list the functions of each pin.   (12)

b. List any three differences between microcontroller and microprocessor.   (3)

OR

IV.   a. Explain the functions of each port in 8051.   (8)

       b. List the features of 8051.   (7)

UNIT – II

V.   a. Write an ALP to transfer six bytes of data stored in RAM location starting from

         40H to new location starting from 50H.   (8)

       b. Explain priority of interrupts in 8051.   (7)

OR

VI.   a. Explain different conditional jump instructions in 8051.   (8)

       b. Draw and explain IE special function register.   (7)

UNIT- III

VII.   a. Explain the mode 0 operation of timer in 8051.   (8)

       b. Draw and explain TMOD special function register.   (7)

OR

VIII.   a. Draw and explain TCON special function register.   (8)

       b. Write down the steps involved in transmitting a byte serially in mode 1.   (7)

UNIT - IV

IX.   a. Explain the interfacing of temperature control system with 8051.   (8)

       b. Draw and explain the interfacing of LCD module with 8051.   (7)

OR

X.   a. With necessary diagrams, explain the interfacing of stepper motor with 8051.   (8)

       b. Explain the interfacing of 4X4 keyboard with 8051.   (7)

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