

**DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/MANAGEMENT/
COMMERCIAL PRACTICE, APRIL – 2021**

MICROCONTROLLER AND INTERFACING

[Maximum Marks: 75]

[Time: 2.15 Hours]

PART-A

(Answer *any three* questions in one or two sentences. Each question carries 2 marks)

I

1. List any two features of 8051 microcontroller.
2. State the difference between CJNE and DJNZ instructions.
3. Define Baud Rate.
4. List the control pins of LCD.
5. State the need for interfacing. (3×2=6)

PART-B

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

II

1. Compare 8031 and 8051 microcontrollers.
2. Draw the structure of port 0 of 8051 and explain.
3. Write a program to multiply two 8-bit numbers.
4. Differentiate between LJMP and SJMP instructions in 8051.
5. Explain the modes of operation of 8051 Timers.
6. Draw the format of TCON register and explain.
7. Sketch the interfacing diagram of Stepper motor with 8051 and explain. (4×6=24)

PART-C

(Answer *any of the three units* from the following. Each full question carries 15 marks)

UNIT-I

- III (a) Draw the block diagram of 8051 and explain. (9)
- (b) Write any six differences between microprocessor and microcontroller. (6)

OR

- IV (a) Explain the internal architecture of RAM in 8051 with diagram. (8)
(b) Draw the pin diagram of 8051 and write the functions of EA, ALE and PSEN. (7)

UNIT – II

- V (a) Explain the addressing modes of 8051 with example. (10)
(b) List the interrupts in 8051. (5)

OR

- VI (a) Write the steps involved in interrupt processing of 8051. (7)
(b) Write a program to transfer 10 bytes of data starting at RAM location 60H to external memory location starting at 4500H. (8)

UNIT – III

- VII (a) List the steps to program the 8051 to receive data serially. (7)
(b) Draw the format of TMOD register and explain. (8)

OR

- VIII (a) Explain mode 0 operation of timer 1 of 8051 with diagram. (7)
(b) Sketch the format of SCON register and explain. (8)

UNIT – IV

- IX (a) With diagram explain interfacing of temperature control system with 8051. (8)
(b) Draw the interfacing diagram of LCD with 8051 and explain. (7)

OR

- X (a) Explain the steps for interfacing ADC with 8051 using diagram. (7)
(b) With diagram explain interfacing of water level indicator system with 8051. (8)
