

**DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/
MANAGEMENT/COMMERCIAL PRACTICE, NOVEMBER – 2020**

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. How may I/O ports are placed in microcontroller 8051?
2. Define DPTR.
3. Differentiate between RET and RETI instructions.
4. What is the function of C/T bit in TMOD register?
5. What is meant by interfacing? (3 x 2 = 6)

PART-B

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

- II 1. Explain PSW register.
2. Explain RAM memory map of 8051.
3. Write a program to transfer the block of data from 20h to 30h to external location 1020h to 1030h.
4. State the priority of interrupt in 8051.
5. Explain the importance of TI and RI flags in 8051.
6. Explain the steps to program the timer 1 in mode 1.
7. Draw the method of interfacing DAC with 8051. (4 x 6 = 24)

PART-C

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

UNIT – I

- III (a) Draw and explain the Pin Diagram of 8051. (10)
(b) State the features of 8051. (5)

OR

- IV (a) With a neat diagram explain the architecture of 8051. (10)
(b) Compare different versions of 8051 microcontroller. (5)

UNIT – II

- V (a) Explain different addressing modes of 8051 with example. (10)
(b) Write a program to divide the content of r0 by r1. Store the result in r2 and r3. (5)

OR

- VI (a) Name different interrupt types. Explain the steps in interrupt processing in 8051. (10)
(b) Explain IE register. (5)

UNIT- III

- VII (a) Explain different modes of operation of timers in 8051. (10)
(b) Explain TMOD register. (5)

OR

- VIII (a) What are the different modes of serial communication? Explain (10)
(b) Explain PCON register. (5)

UNIT - IV

- IX (a) Draw and explain the interfacing circuit of LCD with 8051. (10)
(b) Draw the interfacing diagram of DC motor with 8051. (5)

OR

- X (a) Draw and explain the circuit to interface an ADC with 8051. (10)
(b) Draw the circuit to interface 4*4 matrix keypad with 8051 microcontroller. (5)
