

**DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/
MANAGEMENT/COMMERCIAL PRACTICE, NOVEMBER – 2022**

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. List the function of B register.
2. Which interrupt has highest priority?
3. Which timer of 8051 used to set as baud rate generator?
4. Identify the use of VEE pin of LCD display.
5. List the function of TMOD register. (5 x 2 = 10)

PART-B

[Maximum Marks: 30]

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

1. Explain with figure the program memory organization in 8051.
2. Write a program to toggle P1.3 and P2.3 continuously without effecting the other bits.
3. Summarize the format of IE register.
4. Explain timer/counter control circuit.
5. Describe how 8051 interfaced with 4x4 matrix keyboard. Use the diagram.
6. Draw the ADC interfacing circuit with 8051.
7. List the feature of RESET in 805. (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) Compare different versions from 8031 to 8051. (7)
(b) Describe the architecture 8051. (8)

OR

- IV. (a) Draw the pinout diagram of 8051. (8)
(b) Explain program status word register. (7)

UNIT – II

- V. (a) Discuss CJNE, DJNZ instructions general formats. (8)
(b) Describe interrupts used in 8051. (7)

OR

- VI. (a) Write a program to subtract 0x77 from 0x55. Store result at 4500_H Ext: memory. (8)
(b) Illustrate the function of IP register. (7)

UNIT- III

- VII. (a) Describe any two modes of Timer0. (8)
(b) Write a program to generate a square wave of 1 KHz on pin P2.4 using timer1 in mode1.
The crystal oscillator frequency of microcontroller is 11.0592 MHz (7)

OR

- VIII. (a) Explain any two serial communication modes. (8)
(b) Write a program to transfer 'X' serially at 9600 baud rate continuously. (7)

UNIT - IV

- IX. (a) Explain stepper motor interfacing with 8051. (8)
(b) Describe DC motor interface to 8051. (7)

OR

- X. (a) Explain with diagram 8051 interfaced DAC to generate triangular wave. (8)
(b) Explain water level indicator interfacing system with 8051. (7)
