

DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/  
MANAGEMENT/COMMERCIAL PRACTICE — OCTOBER, 2018

**MICROCONTROLLER AND INTERFACING**

[Time : 3 hours]

(Maximum marks : 100)

**PART — A**

(Maximum marks : 10)

Marks

I Answer *all* questions in one or two sentences. Each question carries 2 marks.

1. State the function of ALE in 8051 microcontroller.
2. What is the purpose of ALU ?
3. List any two interrupt sources in 8051.
4. Define Baud rate.
5. What is meant by interfacing ?

(5×2 = 10)

**PART — B**

(Maximum marks : 30)

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

1. List the features of 8051.
2. Draw the structure of PORT 1 of 8051 and explain.
3. Compare MOVX and MOVC instructions with example.
4. State the priority of interrupts in 8051.
5. Draw the format of TCON register of 8051.
6. Write a program in which the 8051 gets data from P1 and sends it to P2 continuously while incoming data from the serial port is sent to P0. Assume that XTAL = 11.0592MHz. Set the baud rate at 9600.
7. Explain the method of Interfacing a DC motor with 8051.

(5×6 = 30)

## PART — C

(Maximum marks : 60)

(Answer *one* full question from each unit. Each full question carries 15 marks.)

## UNIT — I

- |     |  |   |
|-----|--|---|
| III | (a) Draw and explain the memory structure of 8051. | 8 |
|     | (b) Compare microprocessor and microcontroller.    | 7 |

OR

- |    |  |   |
|----|--|---|
| IV | (a) Draw the pin diagram of 8051 and write the functions of the pins EA, RST and PSEN. | 8 |
|    | (b) Write short note on 128 byte RAM for data storage.                                 | 7 |

## UNIT — II

- |   |  |   |
|---|--|---|
| V | (a) List the steps involved in interrupt processing of 8051.   | 8 |
|   | (b) Write an ALP to move a block of data which is stored in internal location to another internal memory location. | 7 |

OR

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|----|---|---|
| VI | (a) Explain any four addressing modes of 8051 with example.   | 8 |
|    | (b) Write a program to divide two 8 - bit numbers using 8051. | 7 |

## UNIT — III

- |     |  |   |
|-----|--|---|
| VII | (a) Define Timer. Explain Timer mode 0 and Timer mode 1. | 8 |
|     | (b) Draw the format of SCON special function register.   | 7 |

OR

- |      |   |   |
|------|---|---|
| VIII | (a) Which are the different serial communication modes ? Explain.   | 8 |
|      | (b) Assume that XTAL = 11.0592 MHz, write a program to generate a square wave of 2 kHz frequency on pin P1.5. | 7 |

## UNIT — IV

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|----|---|---|
| IX | (a) Draw and explain briefly the method of interfacing DAC with 8051. | 8 |
|    | (b) Explain interfacing of 4×4 keyboard with 8051 microcontroller.    | 7 |

OR

- |   |  |   |
|---|--|---|
| X | (a) Explain the interfacing of temperature control system with 8051. | 8 |
|   | (b) Draw and explain the interfacing of LCD with 8051.               | 7 |