TED (15) – 4043

(REVISION — 2015)

Reg. No. ....

Signature ....

DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/ MANAGEMENT/COMMERCIAL PRACTICE — APRIL, 2019

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.   Write the function of B register.

2.   Define DPTR of 8051.

3.   Mention two assembler directives.

4.   State the function of GATE bits in TMOD register.

5.   List any two advantages of stepper motor.   (5×2 = 10)

PART — B

(Maximum marks : 30)

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

1.   Give the alternate functions of Port0, Port2 and Port3.

2.   State the functions of Stack pointer and Program counter.

3.   Briefly explain different unconditional jump instructions of 8051.

4.   Distinguish between Level and Edge triggered Interrupts.

5.   Creating a square wave of 50% duty cycle on the P1.4 bit. Timer 0 is used to generate the time delay.

6.   Describe the function of SBUF register in 8051 with example.

7.   Write short notes on LCD display.

(5×6 = 30)

[P.T.O.

Marks

PART — C

(Maximum marks : 60)

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

UNIT — I

III	(a)	Draw the general architecture of 8051 and explain.	8
	(b)	Explain the PSW in 8051 microcontroller.	7

OR

IV	(a)	Draw the architecture of PORT0. Explain how this port act as input/output.	8
	(b)	Explain briefly the organization of internal RAM of 8051 with diagram.	7

UNIT — II

V	(a)	Draw the format of IE special function register of 8051 and write the steps in enabling an Interrupt.	8
	(b)	Write an ALP to multiply two 8 - bit numbers using 8051.	7

OR

VI	(a)	Explain any four instruction groups in 8051 with example.	8
	(b)	Draw the format of IP special function register and explain.	7

UNIT — III

VII	(a)	Draw the format of PCON register of 8051 and explain.	8
	(b)	Distinguish between timer and counter functions in 8051.	7

OR

VIII	(a)	Explain Serial data transmission and reception of 8051.	8
	(b)	Program the 8051 to receive bytes of data serially, and put them in P1. Set the baud rate at 4800, with 8-bit data, and 1 stop bit.	7

UNIT — IV

IX	(a)	Explain the steps for interfacing of ADC with 8051 using figure.	8
	(b)	Draw and explain interfacing of Stepper motor with 8051.	7

OR

X	(a)	Explain the interfacing of water level indicator system with 8051.	8
	(b)	Illustrate how a 4×4 key board is interfaced with 8051.	7