TED (10) – 4051

(REVISION — 2010)

Reg. No.....

Signature .....

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

EMBEDDED SYSTEMS

[*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. List two embedded products attached to Computer.
2. State the use of LDS instruction with example.
3. Write the use of macro in AVR.
4. List logical operators used in AVR C.
5. Give the use of RS Pin in LCD. (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 AVR microcontroller.
2. Describe the criteria for choosing microcontroller.
3. Describe accessing of EEPROM in AVR.
4. Write short note on the assembler directives.
5. Write an AVR C program to convert packed BCD to ASCII
6. List and explain Programming of external hardware interrupts of ATmega32.
7. Describe DAC with block diagram. (5×6 = 30)

Marks

PART — C

(Maximum marks : 60)

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

Unit — I

III (a) Illustrate about internal data SRAM and SFR's 10

(b) Describe the general purpose registers and its use in AVR. 5

Or

IV (a) Differentiate between SRAM and EEPROM in AVR chip. 4

(b) Explain the purpose of each bit in AVR status register. 11

Unit — II

V (a) List features of RISC. 6

(b) List and explain Unconditional branch instructions in AVR. 9

Or

VI (a) State the role of stack in CALL and RET instruction. 3

(b) Illustrate with example various arithmetic and logic instructions in AVR. 12

Unit — III

VII (a) Explain Timer0 programming in AVR C. 9

(b) Write AVR C program to toggle the bits of PORTB with some delay. 6

Or

VIII (a) Write AVR C program to send out a value 32h serially one bit at a time via portA. 8

(b) Illustrate how serial data transmission takes place. 7

Unit — IV

IX Illustrate wave form generation in 8 bit timer0 with wave form generator diagram. 15

Or

X Explain working of LCD with pin description and interfacing with AVR. 15