TED (15/19) 6032
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DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/MANAGEMENT/ COMMERCIAL PRACTICE, APRIL - 2025

MICROCONTROLLER AND PLC

[Maximum marks: 100] [Time: 3 Hours]

PART – A
Maximum marks: 10

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

1. State the function of 'RST' PIN in 8051 micro controller.
2. Name any two special function registers handling interrupts in 8051.
3. Write the term 'Baud rate'.
4. List any 2 features of AVR microcontroller.
5. Write any two applications of PLC. (5 x 2 = 10)

PART – B
Maximum marks: 30

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

1. Explain memory organization in 8051.
2. Write the function of CPL A, RLC A, SWAPA, RR A
3. Explain asynchronous communication.
4. Explain mode-0 and mode-1 timer operation in 8051.
5. Draw the interfacing circuit of a relay with 8051 MC.
6. Compare PLC and relay panel.
7. Write steps in PLC programming. (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) Sketch the 8051 DIP chip and indicate pin functions. (9)

(b) List the alternate functions of port 3. (6)

OR

IV. (a) Draw the block diagram of 8051 microcontroller. (9)

(b) Explain function of (a) IE register (b) IP register (c) SCON register. (6)

UNIT - II

V. (a) Explain any four addressing modes of 8051 with examples. (8)

(b) Differentiate LJMP, SJMP and AJMP instruction in 8051 microcontroller. (7)

OR

VI. (a) Write a program for delay subroutine. (7)

(b) Explain logical operations in 8051. (8)

UNIT - III

VII. (a) Describe the control word format of 8255PPI. (7)

(b) Draw and explain the interfacing of stepper motor with 8051. (8)

OR

VIII. (a) Draw the block diagram of 8255PPI. (8)

(b) Draw the block diagram of PIC18 microcontroller. (7)

UNIT – IV

IX. (a) List any 6 advantages of PLC. (6)

(b) Draw the block diagram of PLC and explain each block. (9)

OR

X. (a) Sketch and explain a ladder diagram of star – delta starter. (7)

(b) Explain the programming languages used in PLC. (8)
