TED (15/19) 4032
(Revision-2015/19)

1503240145

Reg.No.....
Signature.....

DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/MANAGEMENT/ COMMERCIAL PRACTICE, NOVEMBER - 2025

DIGITAL ELECTRONICS & MICROPROCESSORS

[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. What is propagation delay?
2. What is K-map?
3. Define decoder.
4. Define modulus of a counter.
5. List any four addressing modes of a microprocessor. (5 x 2 = 10)

PART – B
Maximum marks: 30

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

1. Explain the basic gates using the truth table.
2. Explain half adder with a truth table.
3. State and explain De-morgans theorem.
4. Simplify the following expression using K-map for four variables A,B,C,D.
   Y = M1+M3+M5+M7+M9+M12+M13
5. List any six applications of counters.
6. List any six features of a microprocessor.
7. Explain the logical instructions in the microprocessor. (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) Implement the logic gates for the following expressions.

(i) (A+B)(C+D+E) (ii) (A+$\bar{B}$ +C)(D+$\bar{E}$) (7)

(b) Draw the symbols and truth table of the following logic gates.

(i) NAND (ii) EX-OR (iii) NOR (iv) EX-NOR (8)

OR

IV. (a) Explain any two logic families with advantages. (8)

(b) What is 1's complement and 2's complement of a binary number. Also write 1's complement and 2's complement of 1010101. (7)

UNIT - II

V. (a) Draw and explain 1X 4 demultiplexer. (8)

(b) Draw the logic circuit and give the truth table of full adder using two half adders. (7)

OR

VI. (a) Explain the working of D Flip flop with diagram and truth table. (8)

(b) With logic diagram and truth table explain the working of four line to one line multiplexer. (7)

UNIT - III

VII. (a) Explain any two types of shift registers with neat diagram. (8)

(b) Compare synchronous and asynchronous counters. (7)

OR

VIII. (a) With neat diagram explain two bit ripple up counter. (8)

(b) Explain R-2R DAC with neat diagram. (7)

UNIT – IV

IX. (a) Draw the pin diagram of 8085 microprocessor. (8)

(b) Explain the instruction set of 8085 microprocessor. (7)

OR

X. (a) Draw the architecture of 8085. (7)

(b) Explain the addressing modes of 8085. (8)
