



TED (10) – 3059

(REVISION — 2010)

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Reg. No. ....

Signature .....

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

DIGITAL ELECTRONICS

[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. Define weighted code with example.
2. Define fan-in in logic gates.
3. Define propagation delay in logic family.
4. Define sequential circuits.
5. Write the type of ADCs.

(5×2 = 10)

PART — B

(Maximum marks : 30)

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

1. State and explain De-Morgan's theorems.
2. Simplify the Boolean expression.  
$$Y = \prod (0,1,3,5,6,7,10,14,15).$$
3. Explain the race around condition.
4. Explain the working of full adder circuit using logic gates and truth table.
5. Explain the working of T flip-flop circuit with truth table.
6. Compare SDRAM and EDORAM.
7. Define accuracy, resolution and monotonicity.

(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) Do the following operation :
- (i)  $(284)_{10}$  to Binary.
  - (ii) 010101-101010 (using 2's complement)
  - (iii) Convert  $(6A2.3)_{16}$  into decimal.
  - (iv)  $110101 \times 110$ . 8
- (b) What is mean by binary codes ? Give the list of binary codes. 7

OR

- IV (a) Draw the basic gates using NOR gates only. 6
- (b) Simplify using K'map and draw the logic circuit diagram.
- $Y = ABCD + A\bar{B}\bar{C}\bar{D} + \bar{A}\bar{B}C + AB$  9

UNIT — II

- V (a) Explain the working of  $8 \times 1$  Multiplexer with diagram. 8
- (b) Explain the circuit diagram of TTL inverter. 7

OR

- VI (a) Explain about BCD to seven segment decoder with diagram. 9
- (b) Compare positive and negative logics. 6

UNIT — III

- VII (a) Explain about JK flip-flop with diagram and truth table. 9
- (b) Explain the working of 3 bit ring counter. 6

OR

- VIII (a) Explain the working of 3-bit Asynchronous ripple counter. 9
- (b) Explain the working of right shift register with diagram. 6

UNIT — IV

- IX Draw and explain the working of R-2R ladder network DAC. 15

OR

- X (a) Explain the working of ROM with diagram. 8
- (b) Compare Flash ROM and NVRAM. 7