TED (10) – 3059 Reg. No. .....

(REVISION — 2010) Signature .....

DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/ MANAGEMENT/COMMERCIAL PRACTICE — OCTOBER, 2017

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. State parity bit.
2. Define maxterm.
3. Define Noise margin.
4. State modulo - N Counter.
5. Write the term resolution. (5×2 = 10)

PART — B

(Maximum marks : 30)

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

1. Compare weighted and unweighted code.
2. List the advantages and disadvantages of K'map.
3. Explain with the logic diagram of a 4 × 1 multiplexer.
4. Explain the features of CMOS logic gates.
5. Explain the working of R-S flip-flop circuit with truth table.
6. Compare SDRAM and EDORAM.
7. Explain the race around condition. (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) Do the following operation.

(i) $(1000 - 1010)_2$ (using 2's complement and direct method)

(ii) Convert $(1CEF.\ 2B)_{16}$ into binary

(iii) $(1010110)_2$ to Gray code 8

(b) Write the format of seven bit Hamming code and explain each bit. 7

OR

IV (a) Write short notes on :

(i) BCD code (ii) Gray code (iii) EXCESS -3 code 9

(b) Simplify the Boolean expression.

$Y = \bar{A}\bar{B}\bar{C} + \bar{A}B\bar{C} + A\bar{B}\bar{C} + ABC$ 6

UNIT — II

V (a) Draw and explain the logic circuit of a full subtractor using gates. 8

(b) Draw and explain the circuit diagram of TTL inverter. 7

OR

VI (a) Explain about BCD to Decimal decoder with diagram. 8

(b) Explain the working of 1 to 8 De multiplexer with diagram. 7

UNIT — III

VII (a) Explain about JK flip-flop with diagram and truth table. 8

(b) Differentiate between sequential and combinational circuit. 7

OR

VIII (a) Draw and explain the 3 bit serial in serial out shift register. 8

(b) Differentiate between Asynchronous and synchronous counter. 7

UNIT — IV

IX (a) Draw and explain the working of successive approximation type ADC. 10

(b) Compare FLASH ROM and NV RAM. 5

OR

X (a) Explain the working of 7 bit Binary weighted resistor type DAC. 10

(b) Compare Static and Dynamic RAM. 5
