TED (10) – 3059

(REVISION — 2010)

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)

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) $(284)_{10}$ to Binary.

(ii) 010101-101010 (using 2's complement)

(iii) Convert$(6A2.3)_{16}$ into decimal.

(iv) 110101 × 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.

$Y = ABCD + A\bar{B}\bar{C}\bar{D} + A\bar{B}C + AB$ 9

Unit — II

V (a) Explain the working of 8×1 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