



TED (15/19) -3042
(Revision- 2015/19)

A21-09306

Reg.No.....
Signature.

DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/MANAGEMENT/
COMMERCIAL PRACTICE – APRIL -2021.

DIGITAL ELECTRONICS

(Maximum Marks : 75)

[Time : 2.15 hours]

PART-A

Marks

I. Answer **any three** questions in one or two sentences. Each question carries 2 marks.

1. Write two examples of non-weighted code.
2. Expand ECL.
3. Write the methods of eliminating race around condition in JK flipflop.
4. Define accuracy in DAC.
5. Karnaugh map is used for _____ (3x2=6)

PART - B

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

1. Convert (a) 26_{10} to Binary (b) 101101101_2 to Hex (c) 12_{16} to Binary.
2. Describe the working of CMOS NAND gate.
3. Describe the working of SR flipflop using NAND gates.
4. Draw the circuit of mod-10 asynchronous counter and its timing diagram.
5. Draw the symbols and truth tables of AND, OR, and EX:OR gates.
6. Describe the operation of 4x1 Multiplexer.
7. Explain the working of a 4 bit ring counter.

[4x6 =24]

PART - C

(Answer **any of the three units** from the following. Each full question carries 15 marks)

UNIT I

- III** (a) Subtract 101101 from 110011 by using 2's complement addition method. (5)
- (b) Simplify by using Boolean Algebra and implement.
 $Y = AB + A(B+C) + B(B+C)$ (5)
- (c) Draw the circuit and truth table of the function $F(A,B,C) = \sum(1,4,6,7)$ (5)



OR

- IV** (a) Write any four application of Gray code. (6)
(b) Simplify by using K-Map and implement.
 $Y(A,B,C,D) = \sum(0,1,3,4,5,8,10,15) + d(6,7,11)$ (9)

UNIT- II

- V** (a) Design a full adder circuit. (8)
(b) Describe the circuit of TTL inverter. (7)

OR

- VI** (a) Explain the working of 3 bit encoder. (7)
(b) Define: (i) Noise Immunity (ii) Propagation Delay
(iii) Fan-out (iv) Fan-in (8)

UNIT- III

- VII** (a) Describe the working of Serial In Serial Out Shift Register. (8)
(b) Describe the working of Master Slave JK Flipflop. (7)

OR

- VIII** (a) Describe sequential logic circuits. (7)
(b) Describe about Parallel In/Serial Out Shift Registers. (8)

UNIT – IV

- IX** (a) Explain about mod-8 synchronous counter. (8)
(b) Describe flash type ADC. (7)

OR

- X** (a) Explain the working of R-2R ladder type DAC. (7)
(b) Describe the working of 3 bit asynchronous up-down counter. (8)
