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 AH 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 abuout 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)

****