NETTUR TECHNICAL TRAINING FOUNDATION
DIPLOMA IN ELECTRONICS ENGINEERING & EMBEDDED SYSTEM – CP04
II SEMESTER REGULAR & SUPPLEMENTARY EXAMINATION-JUNE 2023

Subject: Digital Electronics-I   **Total Time: 2 Hr.**

Subject Code: CP04205T   **Total Marks: 50**

PART B

1.0 ANSWER ANY EIGHT OF THE FOLLOWING   2*8=16

1.1 Classify ICs in different Integration Levels.

1.2 Define the following terms related to Binary Information:

   a) Word   b) Double Word

1.3 Find the 10's complement of (456).

1.4 Define the terms Fan-in & Fan-out

1.5 Define Combinational Circuits

1.6 Define Multiplexer. Draw the block diagram of Multiplexer.

1.7 List the applications of CMOS.

1.8 Define Encoder & Encoding

1.9 Find the 2's complement of (1101).

1.10 Define Rise time and fall time

2.0 ANSWER ANY SIX OF THE FOLLOWING   3*6=18

2.1 How digital circuits are important over analog circuits?

2.2 Define Gate Propagation Delay

2.3 Prove that $(A + AB) = A$

2.4 Implement NOT Logic, OR Logic, & AND Logic using NOR logic gates only.

2.5 Draw the logic circuit for 1-bit Comparator & write the truth table for the same.

2.6 Explain the 1:4 Demultiplexer with neat block diagram & logic circuit.

2.7 Define Multivibrator. List the modes of operation of IC 555 Timer

2.8 List the advantages & disadvantages of TTL.

3.0 ANSWER ANY FOUR OF THE FOLLOWING   4*4=16

3.1 Draw the internal block diagram of IC 555 Timer &list the applications

3.2 Explain how monostable mode is known as one shot multivibrator?

3.3 Define the following terms related to pulse waveforms:

   a) Amplitude   b) Time Period   c) Frequency   d) Duty Cycle

3.4 Minimize the given 3-variable SoP expression using Karnaugh Map

$$Y = A\overline{B}C + \overline{A}\overline{B}C + \overline{A}BC + A\overline{B}\overline{C} + \overline{A}\overline{B}\overline{C}$$

3.5 Explain 8:3 Priority Encoder with neat sketch

3.6 Draw the logic symbol & truth tables of basic logic gates

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