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# C.U.SHAH UNIVERSITY Winter Examination-2018 

## Subject Name : Digital Electronics

Subject Code : 4TE03DEL1

## Branch: B.Tech (CE)

Semester : 3 Date : 04/12/2018
Time : 02:30 To 05:30
Marks : 70
Instructions:
(1) Use of Programmable calculator \& any other electronic instrument is prohibited.
(2) Instructions written on main answer book are strictly to be obeyed.
(3) Draw neat diagrams and figures (if necessary) at right places.
(4) Assume suitable data if needed.

## Attempt the following questions:

a) Define Quad word.
b) Find out binary Subtraction of 1010110 - $101010 \quad 1$
c) Solve (25) $10=(?) 2$
d) Solve (1001)2 $=(?) 10$
e) Find out binary to gray number system of 11101 .1
f) Find out $1^{\text {st }}$ complement of 110011 . ..... 1

g) Find out $2^{\text {nd }}$ complement of 1010 . ..... 1
h) What is Fan-out? 1
i) An AND gate has 4 inputs. The number of input words in its truth table are
(a)4 (b)16
(c) 64
(d) 128
j) Give size of one byte in bit size.
k) Radix of Hexadecimal number system is
(a) 16 (b) 10 (c) 4 (d) 2
l) Find out gray to binary number system of 1010 .1
m) How many Flip-Flops are required for mod-16 counter? ..... 1

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\text { (a) } 2 \text { (b) } 6 \text { (c) } 3 \text { (d) } 4
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n) The number of control lines for a 16 - to - 1 multiplexer is 1
(a) 2 (b) 3 (c) 4 (d) 5

Attempt any four questions from $\mathbf{Q}-2$ to $\mathbf{Q - 8}$
Q-2 Attempt all questions(14)
(a) What is Logic Circuit? List out category of Logic gate. Explain Basic gate. ..... 7
(b) Explain Full Subtractor with Truth table. ..... 7
Q-3 Attempt all questions(14)(a) What is Karnaugh Map? Draw Structure of different types of k-map variable7combination.
(b) Explain Sum of Product and Simplify $\Sigma(3,7,11,12,13,14,15)$

Q-4 Attempt all questions
(a) Explain 3 to 8 line Decoder with proper circuit.
(b) Explain POS and Simplify $\pi(0,1,2,4,5,6,8,9,10) \quad 7$

Q-5 Attempt all questions
(a) What is Shift Register? Explain 8-bit Shift Register with proper circuit. 7
(b) Draw following circuit. 7

1) $f=\left(p q+p^{\prime} q^{\prime}\right)$
2) $f=a^{\prime} b+b^{\prime} c+a c^{\prime}$

Q-6 Attempt all questions
(a) Explain J-K Flip Flop with proper circuit. $\quad 7$
(b) What is Asynchronous Counter? Explain 8-bit Shift Counter. 7

Q-7 Attempt all questions
(a) Explain TTL with their different types. $\quad \mathbf{7}$
(b) Write a short note on MOS and CMOS.

Q-8 Attempt all questions
(a) Write a note on Emitter coupled logic. $\quad 7$
(b) Explain 1X4 De-Multiplexer. 7


