Roll No:...........................
Total no. of Questions: 06
Time: 03 hours

Total no. of pages: 01
M.M:60

B.Tech CSE 3rd Sem
Digital Circuits & Logic Design
Subject Code: BTCS-303A (Paper ID:)

Note: All questions are compulsory.

Section A (10x2marks =20)
1. Write answers to the point
a) Find the dual of $(x + y)' = x'y'$
b) Explain the race around condition in JK Flip Flop. How it can be eliminated.
c) Find the complement of $(AB + A'B')$
d) Define the terms Fan-out and Noise Margin in relation to logic families.
e) Differentiate between Mealy and Moore machines.
f) Explain the CMOS inverter function.
g) Differentiate between synchronous and asynchronous counters.
h) Minimize using Boolean Algebra $A'C' + ABC + AC' + AB'$ to two literals.
i) How the ROM is designated.
j) Draw 4-bit Serial in Serial out Shift Right Register.

Section B – (5 x 8marks = 40)

2.	Perform the subtraction X-Y and Y-X for X = 1101 and Y = 1001 using i) 1's complement ii) 2's complement OR a) Find the BCD and Excess -3 code of $(214)_{10}$ b) Convert $(333)_{10}$ into binary, octal and hexadecimal number	CO1
3.	Simply the following Boolean Function to product of sum form and implement the simplified function using NAND gates only $F(A,B,C,D) = \pi(1,3,6,9,11,12,14)$ OR Simply the following Boolean Function using QM method $F(A,B,C,D) = \sum (0,1,2,8,10,11,14,15)$	CO2
4.	Implement Full subtractor using two 4x1 muxes. OR Design 4 bit binary to gray code converter.	CO3
5.	Design synchronous BCD up counter. OR Design J-K Flip Flop using S-R Flip Flop.	CO4
6.	Explain R-2R ladder D/A converter. OR Explain counter type A/D converter.	CO5