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Total No. of Questions : 09] [Total No. of Pages : 02

B.Tech. (Sem. - 3rd)

DIGITAL CIRCUITS & LOGIC DESIGN

SUBJECT CODE : CS - 205

Paper ID : [A0453]

[Note : Please fill subject code and paper ID on OMR]

Time : 03 Hours **Maximum Marks : 60**

Instruction to Candidates:

1) Section - A is **Compulsory**.
2) Attempt any **Four** questions from Section - B.
3) Attempt any **Two** questions from Section - C.

Section - A

Q1) *(10 x 2 = 20)*

a) Solve $(10101)_2 - (10011)_2$.

b) Subtract $(11001)_2$ from $(11101)_2$ using 2's complement method?

c) State De-Morgans theorem?

d) Name three types of TTL gates?

e) What does the term driver mean in a decoder?

f) List two applications of Multiplexer?

g) Which flip flop is preferred for data transfer?

h) What is a volatile memory?

i) Which is the fastest ADC among available ADCs?

j) What is a ring counter?

Section - B

(4 x 5 = 20)

Q2) What is a BCD code? What are its advantages and disadvantages?

Q3) Prove that if A + B = A + C and A' + B = A' + C, then B = C.

Q4) With the help of circuit diagram explain working of a two input TTL NAND gate?

Q5) Describe with diagram internal architecture of PAL?

Q6) Design a circuit that will generate an even parity bit for 4 bit input and implement it using only NAND gates?

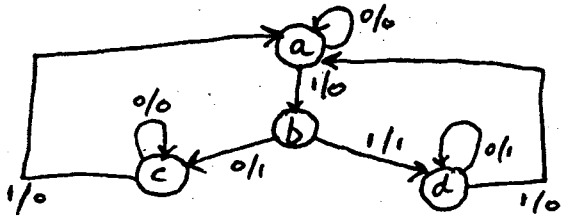
Section - C

(2 x 10 = 20)

Q7) (a) Explain the difference in operation of a monostable and astable multivibrator?

(b) What is master slave JK flip flop / Explain its working?

Q8) Design a circuit that will function according to state diagram given below:



Q9) (a) Implement the function

F = A'BC + ABC' + A'B'C' + AC' using PAL.

(b) With help of neat diagram explain working of R-2R ladder type DAC.