Total No. of Questions : 4]

SEAT No. : ____

P-5402

[Total No. of Pages : 2

[6186]-528

S.E. (Information Technology) (In Sem.)

LOGIC DESIGN & COMPUTER ORGANIZATION

(2019 Pattern) (Semester - III) (214442)

Time : 1 Hour] ***[Max. Marks : 30***

Instructions to the candidates :

1) ***Answer Q.1 or Q.2 and Q.3 or Q.4.***
2) ***Neat diagrams must be drawn wherever necessary.***
3) ***Figures to the right side indicate full marks.***
4) ***Assume Suitable data if necessary.***

UNIT - 1

Q1) a) Do the following : **[5]**

i) $(735.25)_{10} = (?)_{16}$

ii) $(101011.111011)_2 = (?)_8 = (?)_{10}$

iii) Convert 1110 gray to binary and convert binary 1011 to gray

b) Simplify and implement following function using k-map **[5]**

$f(A,B,C,D) = \Sigma m(0,2,5,6,7,8,10,13,14,15)$

c) Explain the working of a 2- input CMOS NAND gate with suitable figures? **[5]**

OR

Q2) a) Represent the decimal numbers : **[5]**

i) 396 in : 1 .BCD 2.Excess -3 code.

ii) Represent +40 and –40 decimal numbers using 2's complement.

b) Add the binary numbers

i) 1011 and 1100

ii) 0101 and 1111

c) What is Logic family? Explain any four characteristics of digital lcs.**[5]**

P.T.O.

UNIT - 2

Q3) a) Design and explain full subtractor using IC 74138? **[5]**

b) Explain and Design Full Adder using Half Adder? **[5]**

c) Implement Full Adder using demultiplexer? **[5]**

OR

Q4) a) Implement the follwing Boolean function using single 8 : 1 multiplexer $f(A,B,C,D) = \Sigma m(1,4,6,9,13)$ **[5]**

b) Explain BCD to excess-3 code converter with logic diagram? **[5]**

c) Add $(83)_{10}$ and $(34)_{10}$ in BCD? **[5]**

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