Total No. of Questions : 6] **SEAT No. :**

P-5397 **[Total No. of Pages : 2**

[6186]-523

S.E. (Computer Engineering) (Insem.)

DIGITAL ELECTRONICS AND LOGIC DESIGN

(2019 Pattern) (Semester - III) (210245)

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

Instructions to the candidates :

1) ***Attempt Q.1 or Q.2, Q.3 or Q.4, Q.5 or Q.6.***
2) ***Neat diagrams must be drawn wherever necessary.***
3) ***Assume suitable data, if necessary.***

Q1) a) Simplify the following function F(A, B, C, D) = $\sum$m(0, , 2, 4, 5, 6, 7, 8, 10, 13, 15). **[5]**

b) Simplify the following function **[5]**

F(A, B, C, D) = π m(0, 2, 3, 8, 9, 12, 13, 15)

OR

Q2) a) Simplify the following function F(A, B, C, D) = $\sum$m(0 2 4 5 6 8, 10 15) +d(7 13 14) **[5]**

b) Simplify the following function **[5]**

F(w, x, y, z) = $\sum$m(4, 5, 7, 12, 14, 15) +d(3, 8, 10)

Q3) a) Draw and explain 4-bit BCD adder using IC 7483. Explain any two BCD addition operations. **[5]**

b) Design a 4 bit Gray to Binary code converter? State the application of Gray code. **[5]**

OR

Q4) a) Design a 4 bit BCD to Excess-3 code converter circuit using logic gates. **[5]**

b) What is Multiplexer? Design 8:1 multiplexer with a dual 4:1 - multiplexer. **[5]**

P.T.O.

Q5) a) What do you mean by half adder and full adder? How will you implement full adder using half adder? Draw the circuit diagram. **[5]**

b) Convert the following expressions into their standard SOP form **[5]**

i) Y = AB + AC + BC

ii) Y = A + BC + ABC

OR

Q6) a) Minimize the function using K-map and implement Using NAND gates, F(A, B, C, D) = $\sum$m(4, 5, 6, 7, 8, 12) +d(1, 2, 3, 9, 11, 14). **[5]**

b) Write a short note on 2 bit comparator? **[5]**

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