Total No. of Questions : 4]

SEAT No. :

**PA-26**

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## S.E. (Information Technology)

## LOGIC DESIGN & COMPUTER ORGANIZATION

## (2019 Pattern) (Semester - I) (214442)

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

***Instructions to the candidates :***

1) ***Attempt Q.1 or Q.2 and Q.3 or Q.4.***
2) ***Figures to the right indicate full marks.***

***Q1)*** a) List and explain the characteristics of CMOS. **[7]**

b) Perform following operations using unsigned binary format **[8]**

i) 1011 + 1100

ii) 1011 – 0110

OR

***Q2)*** a) Design 4-bit binary to gray code convertor. **[7]**

b) Simplify f (A, B, C, D) = $\sum$m(0, 2, 5, 6, 7, 8, 10, 13, 14, 15) using k-map and draw it's logic diagram. **[8]**

***Q3)*** a) Design Full Subtractor using basic gates. **[7]**

b) Differentiate multiplexor & Demultiplexor. **[8]**

OR

***Q4)*** a) Design BCD adder using binary adder IC 7483. **[7]**

b) Implement following using IC 74138 Decoder **[8]**

$y_0$ (A, B, C) = $\sum$m(0, 3, 4)

$y_1$ (A, B, C) = $\sum$m(0, 1, 7)

$y_2$ (A, B, C) = $\sum$m(0, 5, 6)

$y_3$ (A, B, C) = $\sum$m(1, 4, 7)