INDRAPRASTHA INSTITUTE OF INFORMATION TECHNOLOGY, DELHI

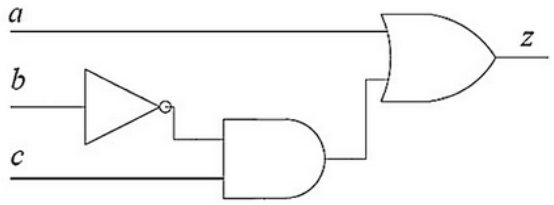
ECE111 DC

TUTORIAL 4 **(10 marks)**

1) **Find the (r-1)'s complement for the given numbers:** **(2 marks)**

   a) $(723)_8$
   b) $(467)_{10}$
   c) $(10110)_2$
   d) $(467)_{12}$

2) **(a) Consider the Boolean function z(a,b,c)** **(2 marks)**



Express the Boolean function in Canonical SOP and POS form.

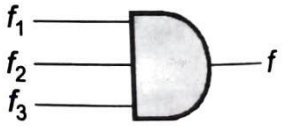
(b) Design a logic circuit that has input A, B and C whose output 'F' will be high only when a majority of the inputs is high.

3) **Consider the logical functions given below.**

$f_1(A, B, C) = \sum(2, 3, 4)$

$f_2(A, B, C) = \prod(0, 1, 3, 6, 7)$ **(2 marks)**

If 'f' is logic zero, then find the maximum number of possible minterms in function f_3.



4) **Two 4-bit 2's complement numbers 1011 and 0110 are added. Find the result and express it in 4-bit 2's complement notation.** **(2 marks)**

5) **Find the result of $(45)_{10}$ - $(45)_{16}$ and express it in 6-bit 2's complement representation.** **(2 marks)**

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