Combinational Logic III

Logic Structures

Mu	ltip	lexors
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Multiplexors			
2 -1 Multiplexor Multiplexors are used to select one of man	y inputs.		
The determines which output to select.			
Draw the symbol for a 2-1 multiplexor	Finish the simplified truth table S Out 0 1		
Draw the logic diagram for a 2-1 multiple:	xor		
4-1 Multiplexor			
A 4-1 multiplexor has inputs, so the	re are select lines.		
Draw the symbol for a 4-1 multiplexor	Finish the simplified truth table Out		

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Draw a logic diagram for a 4-1 multiplexor	`		
Decoder			
# inputs: # outputs:			
Example: 1-2 Decoder			
Draw a 1-2 decoder	Complete the	truth table	
	in	out_1	out_0
Example: 2-4 Decoder			
Draw a 2-4 decoder	Complete the	truth table	
	in_1 in_0	out_3 out_2	out_1 out_0

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Addition

Example: perform addition and label digits for sum, carry out, and carry in

Perform decimal addition	Perform binary addition
9 9 9 8	1 1 0 1
+ 5 0 2 1	+ 1 0 0 1

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2 inputs: 2 outputs:	
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Draw the schematic here:	Complete the truth table:			
	A	В		

Generate the product of sums solutions for the outputs.

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Full Adder	
3 inputs:	2 outputs:
Draw the schematic here:	Complete the truth table:
	A B
Generate the product of sums solut	cions for the outputs.

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Four-Bit Ripple Carry Adder

Draw the schematic for a 4-bit ripple carry adder:
Draw this adder as a black box
Draw this adder as an ALU

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