

Question 1: Short answer:

(a) how many different function can be produced by three different variables: _____

(b) The Number of the Maxterms in $(A \oplus B)C$: _____

(c) The Xor result of 10011001 and 11000011 is: _____

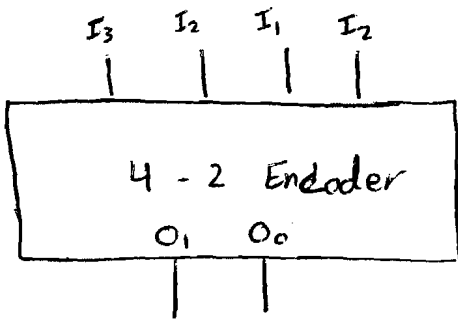
(d) Fill the table

1's complement	Decimal Value	Complement	Decimal value
0000 0000			
1111 1110			
0011 0011			
1000 0000			

(e) Assume that we have a state diagram with 26 states 7 inputs and 3 outputs What is the Minimum Number of flip flops needed to implement this sequential circute?

(f) Show the summation of values 10011101 and 10100001 which are in 2's complement format Does this operation overflow?

Question 2



I_3	I_2	I_1	I_0	V	O_1	O_0
0	0	0	0	0	X	X
0	1	0	0	1	1	0
0	1	1	0	1	0	1
0	X	0	1	1	0	0
1	X	0	0	1	1	1

- (a) Find the input priority
 (b) Find simplified equation for O_1

Question 3

Design 5:32 decoder using 4 3 to 8 decoders with enable and one 2 to 4 decoder

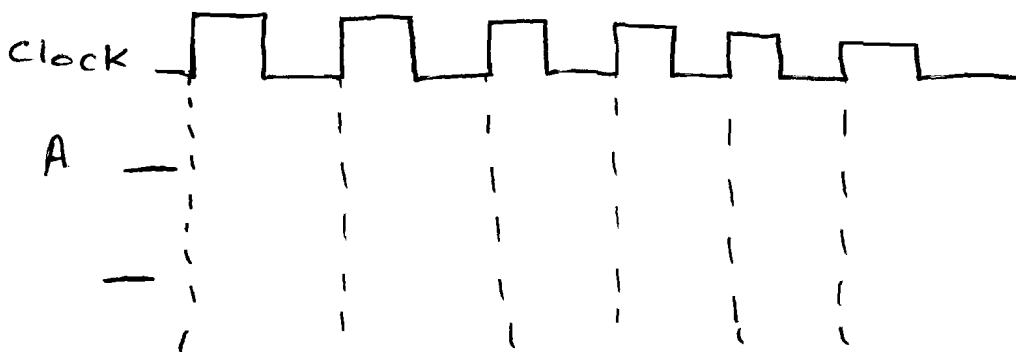
Question 4:

Complete the diagram for two JK FF (A and B)
 initial stat $A = B = 0$

FF equations

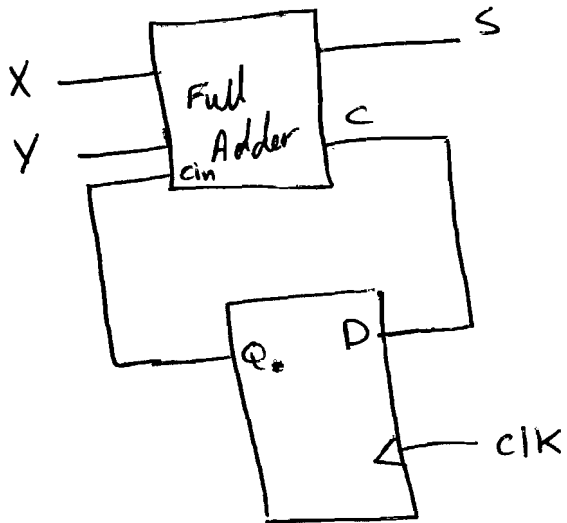
$$J_A = K_A = B'$$

$$J_B = A \quad K_B = A'$$



Question 6:

Find the state table for the following circuit:



Question 7:

Find the equation for F_1 and F_2

PLA Diagram See Programmable logic Slide

Slide Number 14 same diagram

Question 8:

Design counter that do the following using JK FF

$X=0$ counts up gray code (00, 01, 11, 10, 00)

$X=1$ counts down gray code (00, 10, 11, 01, 00)

Fill the state table

Find equations for J_A K_A J_B K_B