

Digital Logic

CISC 221 – Assignment 4 Due: March 24, 2021, 11:59pm

Answer questions based on each of the following 5 truth tables.

(a)	(b)	(c)	(d)	(e)
A B Y	A B C Y	A B C Y	A B C D Y	A B C D Y
0 0 1	0 0 0 1	0 0 0 1	0 0 0 0 1	0 0 0 0 1
0 1 0	0 0 1 0	0 0 1 0	0 0 0 1 1	0 0 0 1 0
1 0 1	0 1 0 0	0 1 0 1	0 0 1 0 1	0 0 1 0 0
1 1 1	0 1 1 0	0 1 1 0	0 0 1 1 1	0 0 1 1 1
	1 0 0 0	1 0 0 1	0 1 0 0 0	0 1 0 0 0
	1 0 1 0	1 0 1 1	0 1 0 1 0	0 1 0 1 1
	1 1 0 0	1 1 0 0	0 1 1 0 0	0 1 1 0 1
	1 1 1 1	1 1 1 1	0 1 1 1 0	0 1 1 1 0
			1 0 0 0 1	1 0 0 0 0
			1 0 0 1 0	1 0 0 1 1
			1 0 1 0 1	1 0 1 0 1
			1 0 1 1 0	1 0 1 1 0
			1 1 0 0 0	1 1 0 0 1
			1 1 0 1 0	1 1 0 1 0
			1 1 1 0 1	1 1 1 0 0
			1 1 1 1 0	1 1 1 1 1

- (2 marks) Write a Boolean expression in sum-of-product canonical form. Make sure you sort the minterms in the ascending binary order as shown in lecture.
- (2 marks) Rewrite the expression using the sigma notation, e.g. $Y = \Sigma(0, 2, 5)$.
- (4 marks) Simplify it using the Karnaugh map. Write your simplified expression.

Deliverables

To OnQ:

- Single PDF file for all questions.