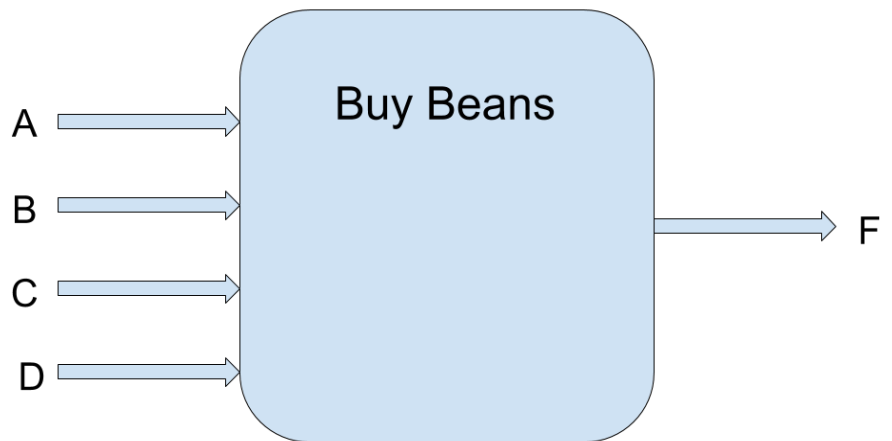


Problem 1

Truth Table & BBD

Index	ABCD	F
0	0000	0
1	0001	1
2	0010	1
3	0011	1
4	0100	1
5	0101	1
6	0110	0
7	0111	1
8	1000	0
9	1001	0
10	1010	1
11	1011	1
12	1100	0
13	1101	0
14	1110	1
15	1111	0



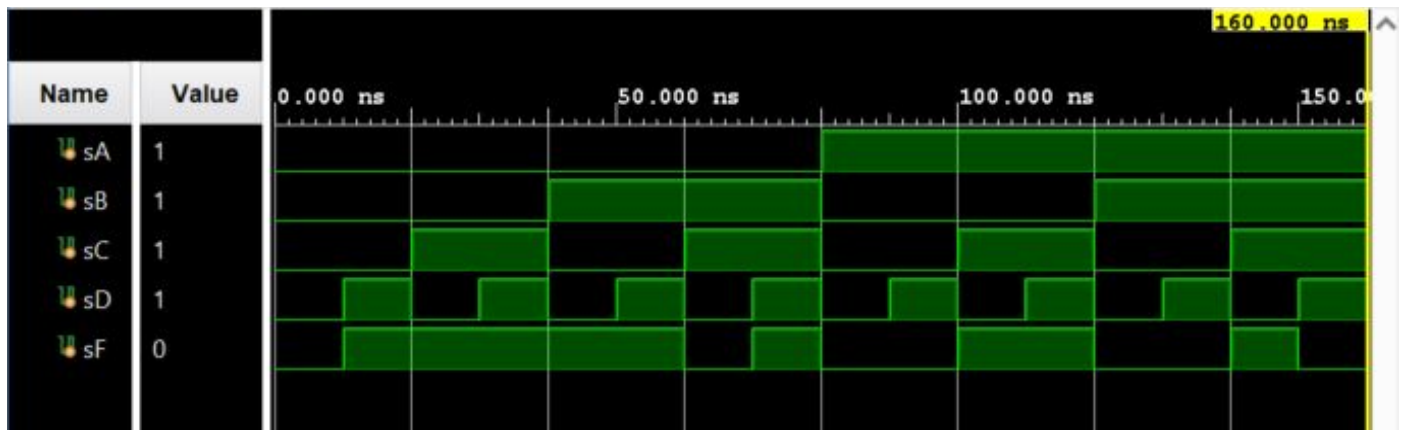
Kmap

		CD			
		00	01	11	10
	00	0	1	1	1
	01	1	1	1	0
AB	11	0	0	0	1
	10	0	0	1	1

(Red boxes indicate a shared space between 2 prime implicants)

$$\text{Equation: } f(A, B, C, D) = \sim AB\sim C + A\sim BC + \sim AD + \sim A\sim BC + AC\sim D$$

Simulation



Source code

[Design Source](#)

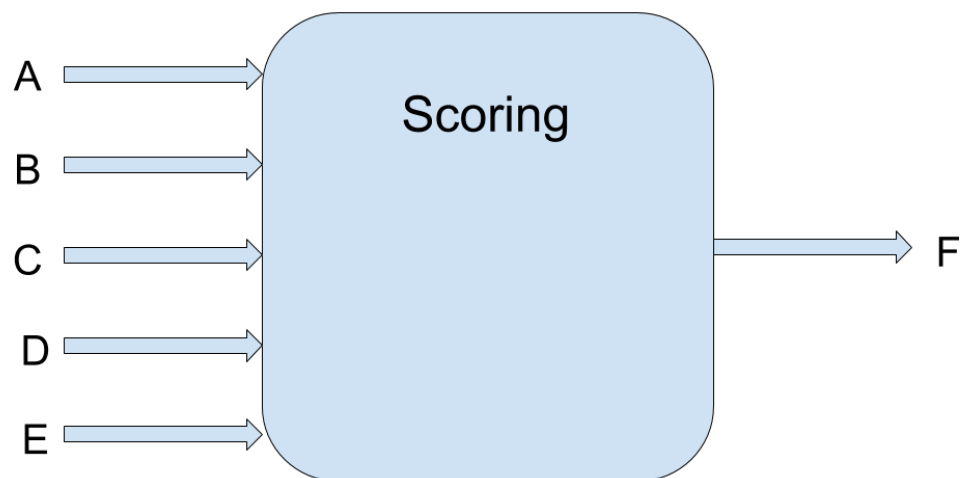
[Constraints](#)

[Simulation](#)

Problem 2

Truth Table & BBD

Index	ABCDE	F
0	00000	0
1	00001	0
2	00010	0
3	00011	0
4	00100	0
5	00101	0
6	00110	0
7	00111	1
8	01000	0
9	01001	0
10	01010	0
11	01011	1
12	01100	0
13	01101	1



14	01110	1
15	01111	1
16	10000	0
17	10001	0
18	10010	0
19	10011	1
20	10100	0
21	10101	1
22	10110	1
23	10111	1
24	11000	0
25	11001	1
26	11010	1
27	11011	1
28	11100	1
29	11101	1
30	11110	1
31	11111	1

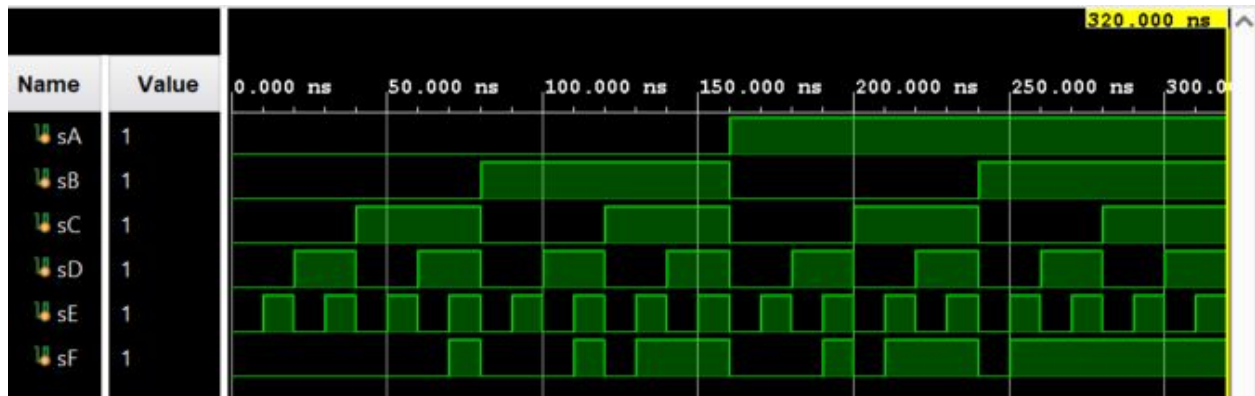
Kmap

				~A				A		
						DE				
		00	01	11	10		00	01	11	10
	00	0	0	0	0		0	0	1	0
	01	0	0	1	0		0	1	1	1
BC	11	0	1	1	1		1	1	1	1
	10	0	0	1	0		0	1	1	1

(Red boxes indicate a shared space between prime implicants)

Equation: $f(A, B, C, D, E) = ABC + ADE + \sim ABCE + \sim ACDE + \sim ABCD + \sim ABDE + A\sim BCE + A\sim BCD + AB\sim CD + AB\sim CE$

Simulation



Source Code

[Design Source](#)

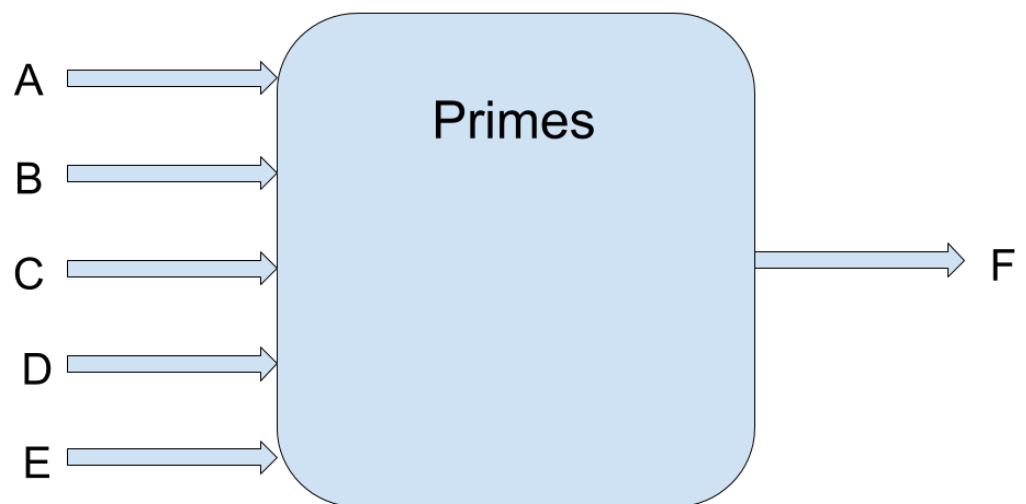
[Constraints](#)

[Simulation](#)

Problem 3

Truth Table & BBD

Index	ABCDE	F
0	00000	0
1	00001	0
2	00010	1
3	00011	1
4	00100	0
5	00101	1
6	00110	0
7	00111	1
8	01000	0
9	01001	0
10	01010	0
11	01011	1
12	01100	0
13	01101	1



14	01110	0
15	01111	0
16	10000	0
17	10001	1
18	10010	0
19	10011	1
20	10100	0
21	10101	0
22	10110	0
23	10111	1
24	11000	0
25	11001	0
26	11010	0
27	11011	0
28	11100	0
29	11101	1
30	11110	0
31	11111	1

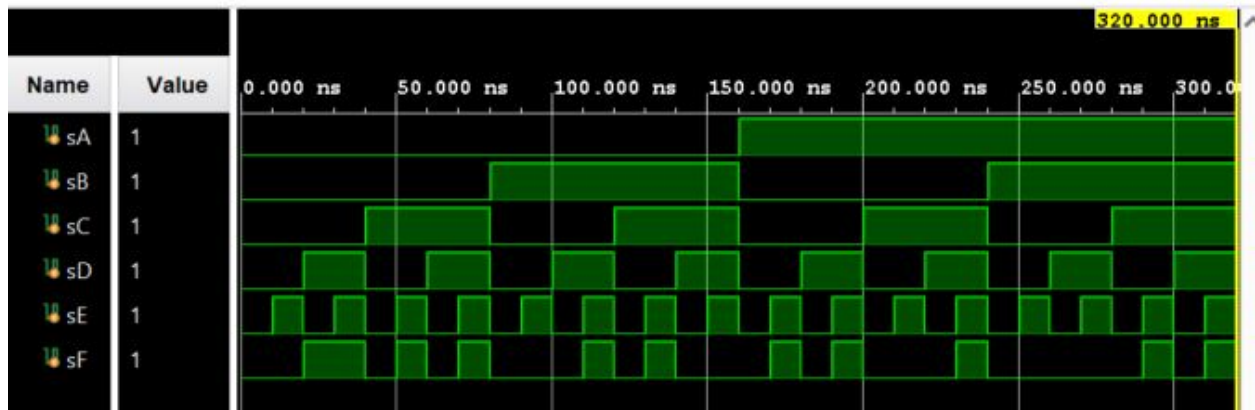
Kmap

				~A				A		
						DE				
		00	01	11	10		00	01	11	10
	00	0	0	1	1		0	1	1	0
	01	0	1	1	0		0	0	1	0
BC	11	0	1	0	0		0	1	1	0
	10	0	0	1	0		0	0	0	0

(Red boxes indicate a shared space between prime implicants)

$$\text{Equation: } f(A, B, C, D, E) = \sim BDE + \sim AC\sim DE + \sim A\sim B\sim CD + \sim A\sim CDE + A\sim B\sim CE + ABCE$$

Simulation



Source Code

[Design Source](#)

[Constraints](#)

[Simulation](#)