

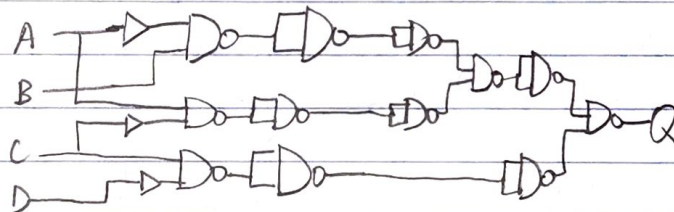
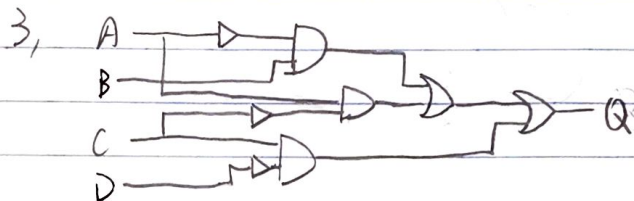
Problem 1:

$$1. Q = A'B'C'D' + A'B'C'D + A'B'CD' + A'BC'D' + A'BC'D + A'BCD' + A'BCD + AB'C'D' + AB'C'D + AB'CD' + ABCD'$$

2.

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

$$Q = \bar{A}B + CD + A\bar{C} \text{ or } Q = (\bar{A} + \bar{B} + C)(\bar{A} + \bar{C} + \bar{D})(B + \bar{C} + \bar{D})$$



Problem 2: DEF

ABC	000	001	011	010	110	111	101	100
000	0	0	X	0	1	X	1	1
001	0	0	X	0	1	1	1	1
011	0	0	0	0	0	0	0	X
010	0	X	0	1	1	0	0	1
110	1	0	0	1	1	0	0	1
111	1	0	0	0	0	0	0	1
101	1	0	1	X	1	1	0	1
100	1	0	1	1	1	1	0	1

$$1. Q = \bar{B}\bar{C}D + B\bar{D}\bar{E} + A\bar{D}\bar{E} + A\bar{B}\bar{C} + B\bar{C}\bar{E}\bar{F}$$

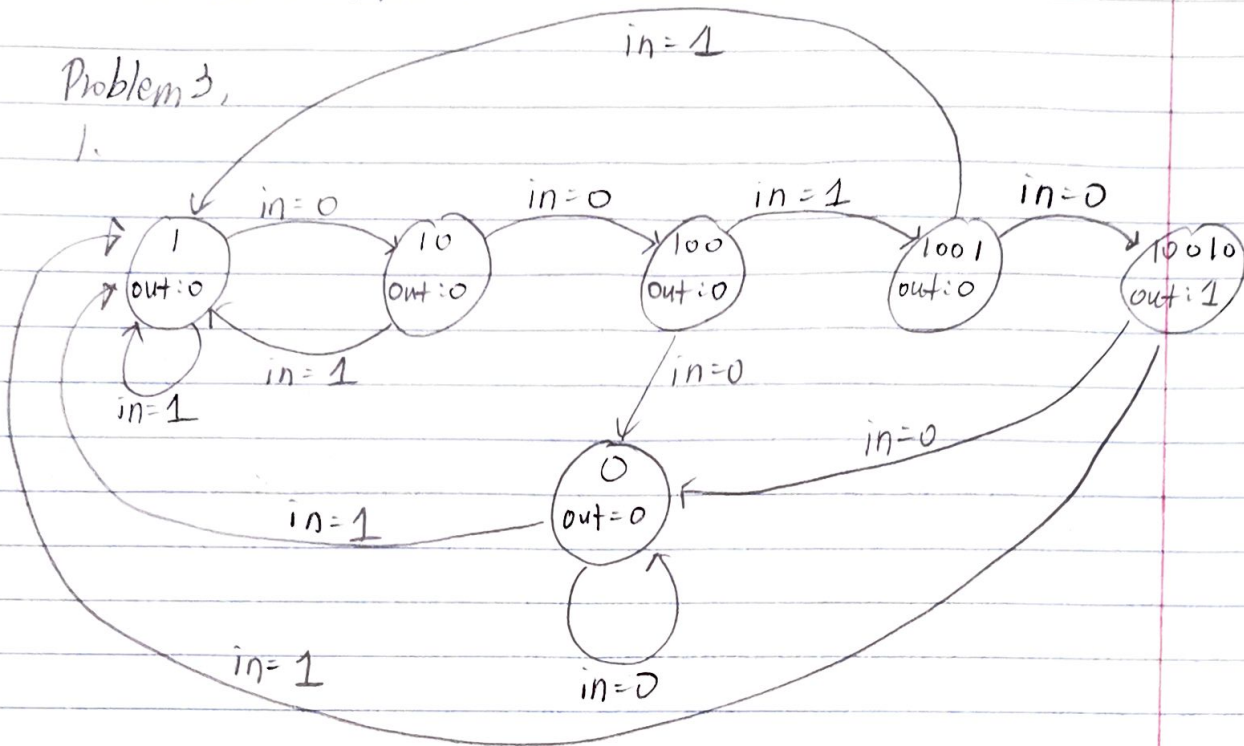
$$2. Q = (A + B + \bar{C})(D + \bar{E} + \bar{F}) + (A + D + E) + (\bar{A} + \bar{C} + E) + (\bar{A} + C + E) + (\bar{A} + \bar{B} + \bar{C} + \bar{D}) + (D + E + F + B) + (A + \bar{B} + C + D)$$

3, The two functions are not equivalent.

It is due to to don't care (x) terms. This makes the grouping for SOP and POS not the compliment of each other.

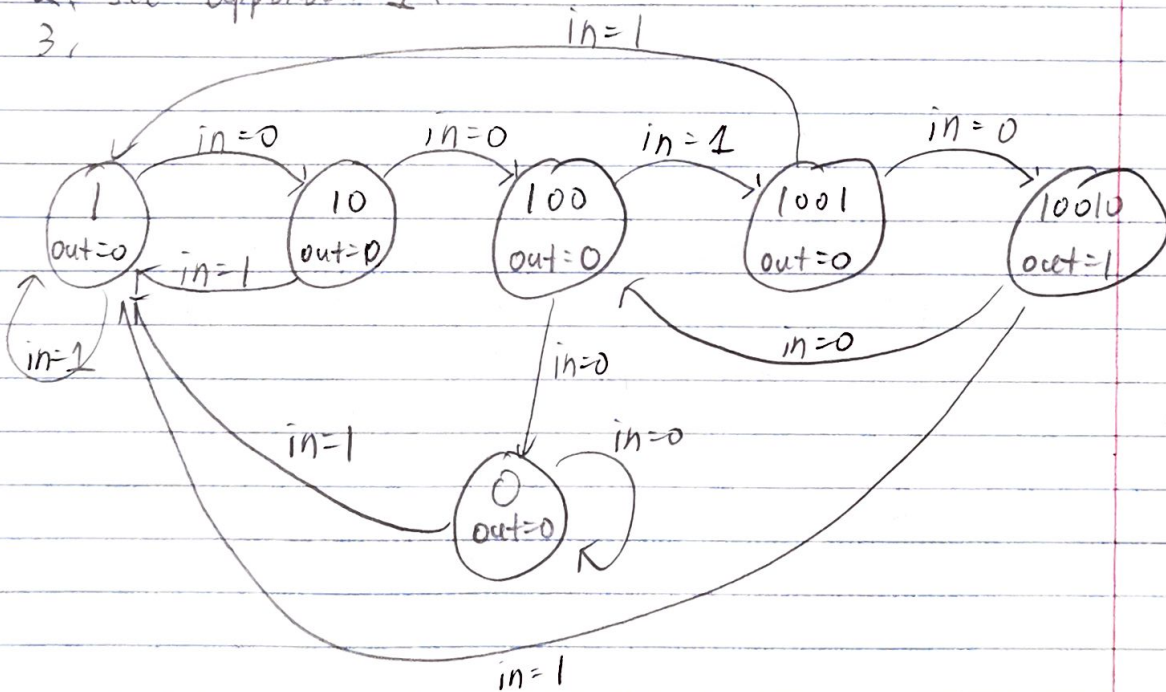
Problem 3,

1.



2, see appendix 1.

3,





4.

