CISC 221 Assignment 4

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1. (a) $Y = \overline{AB} + A\overline{B} + AB$
   (b) $Y = \overline{ABC} + ABC$
   (c) $Y = \overline{ABC} + \overline{A}B\overline{C} + A\overline{BC} + A\overline{B}C + ABC$
   (d) $Y = \overline{ABCD} + \overline{ABC}D + \overline{AB}C\overline{D} + \overline{AB}CD + A\overline{BCD} + A\overline{B}C\overline{D} + ABC\overline{D}$
   (e) $Y = \overline{ABCD} + \overline{AB}CD + \overline{A}B\overline{C}D + \overline{A}BC\overline{D} + A\overline{BC}D + A\overline{B}C\overline{D} + AB\overline{CD} + ABCD$
2. (a) $\sum(0, 2, 3)$
   (b) $\sum(0, 7)$
   (c) $\sum(0, 2, 4, 5, 7)$
   (d) $\sum(0, 1, 2, 3, 8, 10, 14)$
   (e) $\sum(0, 3, 5, 6, 9, 10, 12, 15)$
3. (a)

B \ A	0	1
0	1	1
1	0	1

$Y = \overline{B} + AB$

(b)

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

$Y = \overline{ABC} + ABC$

(c)

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

$Y = \overline{AC} + A\overline{B} + ABC$

(d)

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

$Y = \overline{AB} + AC\overline{D} + A\overline{BCD}$

(e)

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

$Y = \overline{ABCD} + \overline{AB}CD + \overline{A}B\overline{C}D + \overline{A}BC\overline{D} + A\overline{BC}D + A\overline{B}C\overline{D} + AB\overline{CD} + ABCD$