Privacy Enhancing Techniques 408H Coursework

Truth table:

A	B	C	D	O1	O2
0	0	0	0	0	0
0	0	0	1	1	1
0	0	1	0	1	1
0	0	1	1	1	1
0	1	0	0	0	1
0	1	0	1	0	0
0	1	1	0	1	1
0	1	1	1	1	1
1	0	0	0	0	1
1	0	0	1	0	1
1	0	1	0	0	0
1	0	1	1	1	1
1	1	0	0	0	1
1	1	0	1	0	1
1	1	1	0	0	1
1	1	1	1	0	0

Karnaugh maps:

O1:

	$\neg C \wedge \neg D$	$\neg C \wedge D$	$C \wedge D$	$C \wedge \neg D$
$\neg A \wedge \neg B$	0	1	1	1
$\neg A \wedge B$	0	0	1	1
$A \wedge B$	0	0	0	0

	0	0	1	0
$A \land \neg B$	0	0	1	0

O2:

	$\neg C \land \neg D$	$\neg C \land D$	$C \land D$	$C \land \neg D$
$\neg A \land \neg B$	0	1	1	1
$\neg A \land B$	1	0	1	1
$A \land B$	1	1	0	1
$A \land \neg B$	1	1	1	0

Logical Equation:

O1 = $\neg A \land C \lor \neg A \land \neg B \land D \lor \neg B \land C \land D$
O2 = $B \oplus D \lor A \oplus C$

Circuit: