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DigiPen CS Vadim Surov CS100A Assignment #2

Boolean Algebra And Expression Simplification

Demonstrate the ability to apply the rules of boolean algebra.
Rules: Calculators are not allowed. Do all calculations on a sheet of paper. Note: Use AB instead of A AND B, use A+B insted of A OR B, and use A' instead of NOT A

Instruction

Read carefully and check all statements below you agree with or that are correct about your assignment submission.

- ☐ If something is not clear in this page I ask for help from instructor or TA during submission period.
- ☐ After submission I will get a tentative assessment based on my input, that may be changed later after re-evaluation by grader.
- ☐ My answers represent my own individual work.
- ☐ Cheating of any kind (copying someone else's work, allowing others to copy your work, collaborating, etc.) will not be tolerated and will be dealt with SEVERELY.

★ **SOP1** **0** ☑

For the given truth table write down the SOP form of X.

A	B	C	X
0	0	0	0
0	0	1	1
0	1	0	0
0	1	1	1
1	0	0	0
1	0	1	1
1	1	0	0
1	1	1	0

A'B'C+A'BC+AB'C

- Ex: ABC+A'B'C'. No spaces between letters

★ **SOP2** **0** ☑

For the given truth table write down the SOP form of X.

A	B	C	X
0	0	0	1
0	0	1	0
0	1	0	0
0	1	1	0
1	0	0	0
1	0	1	0
1	1	0	0
1	1	1	1

A'B'C'+ABC

- Ex: ABC+A'B'C'. No spaces between letters

★ **POS1** **0** ☑

For the given truth table write down the POS form of X.

A	B	C	X
0	0	0	1
0	0	1	1
0	1	0	0
0	1	1	1
1	0	0	0
1	0	1	1
1	1	0	0
1	1	1	0

(A+B'+C)(A'+B+C)(A'+B'+C)(A'+B'+C')

- Ex: (A+B+C)(A'+B'+C'). No spaces between letters

★ **POS2** 0 ☑

For the given truth table write down the POS form of X.

A	B	C	X
0	0	0	0
0	0	1	1
0	1	0	1
0	1	1	1
1	0	0	1
1	0	1	1
1	1	0	0
1	1	1	0

(A+B+C)(A'+B'+C)(A'+B'+C')

- Ex: (A+B+C)(A'+B'+C'). No spaces between letters

★ **SIM1** 0 ☑

Simplify the following Boolean expression and choose the best answer.

(A 0)+(A 1)+(A 0)'+(A 1)'

- ○ 0
- ✔ ○ 1
- ○ 2
- ○ A
- ○ A'
- ○ None of the above

★ **SIM2** 0 ☑

Simplify the following Boolean expression and choose the best answer.

(A+B+C)(D+E)' + (A+B+C)(D+E)

- ✔ ○ A+B+C
- ○ D+E
- ○ A'B'C'
- ○ D'E'
- ○ None of the above

★ **SIM3** 0 ☑

Simplify the following Boolean expression and choose the best answer.

XZ+Z(X'+XY)

- ○ Z+YZ
- ○ Z+XYZ
- ○ XZ
- ○ X+YZ
- ✔ ○ None of the above

★ **SIM4** 0 ☑

Simplify the following Boolean expression and choose the best answer.

(A+B)'(C+D+E)'+(A+B)'

- ○ A+B
- ✔ ○ A'B'
- ○ C+D+E
- ○ C'D'E'
- ○ A'B'C'D'E'
- ○ None of the above

★ **SIM5** 0 ☑

Simplify the following Boolean expression and choose the best answer.

A'B'+C'+D'+E'

- ○ A+B+C+D+E
- ○ ABCDE
- ○ AB(C+D+E)
- ○ AB+C'+D'+E'
- ○ (A+B)CDE
- ✔ ○ None of the above

★ **SIM6** **0** ☑

Simplify the following Boolean expression and choose the best answer.

AB+ABC+ABCD+ABCDE+ABCDEF

- ○ ABCDEF
- ✔ ○ AB
- ○ AB+CD+EF
- ○ A+B+C+D+E+F
- ○ A+B(C+D(E+F))
- ○ None of the above

★ **SIM7** **0** ☑

Simplify the following Boolean expression and choose the best answer.

(X+Z)(X'+Y)(Z+Y)

- ✔ ○ XY+X'Z
- ○ XYZ
- ○ X+Y'+Z
- ○ XZ+Y'Z
- ○ X+Y+Z'
- ○ None of the above

★ **SIM8** **0** ☑

Simplify the following Boolean expression and choose the best answer.

X'+Y'+XYZ'

- ✔ ○ X'+Y'+Z'
- ○ XYZ
- ○ X+Y+Z
- ○ X'Y'Z'
- ○ (X+Y)Z
- ○ None of the above

★ **SIM9** **0** ☑

Simplify the following Boolean expression and choose the best answer.

(A+C)(AD+AD')+AC+C

- ✔ ○ A+C
- ○ A+D
- ○ C+D
- ○ A
- ○ C
- ○ None of the above

★ **SIM10** **0** ☑

Simplify the following Boolean expression and choose the best answer.

A(A+B'C)+A(B'+C)

- ○ A+C
- ○ A+D
- ○ B
- ✔ ○ A
- ○ C
- ○ None of the above

Survey

- What is approximate number of hours you spent implementing this assignment?

- Indicate the specific portions of the assignment that gave you the most trouble

By signing this document you fully agree that all information provided therein is complete and true in all respects.

Responder sign: