DIGITAL SYSTEMS

PRACTICUM 5

By:

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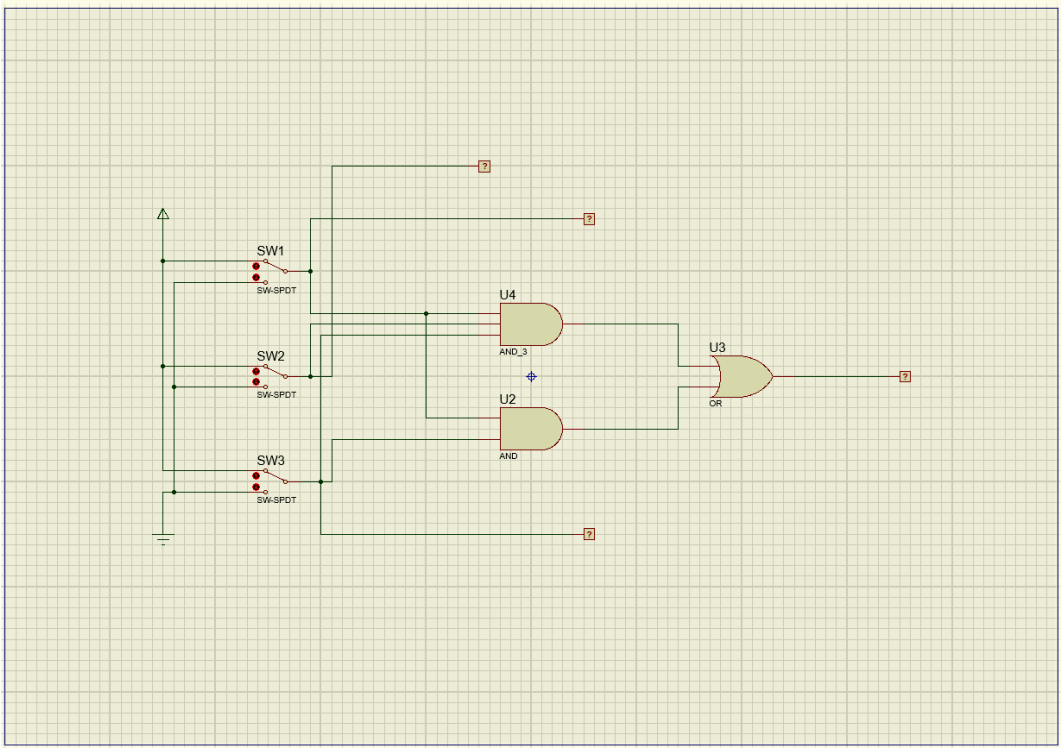
Experiment 1



Picture 1.1. Logic gate combination

1. Boolean functions

   F = ABC+AC

2. Truth table

A	B	C	F
0	0	0	0
1	0	0	0
0	1	0	0
1	1	0	0
0	0	1	0
1	0	1	1
0	1	1	0
1	1	1	1

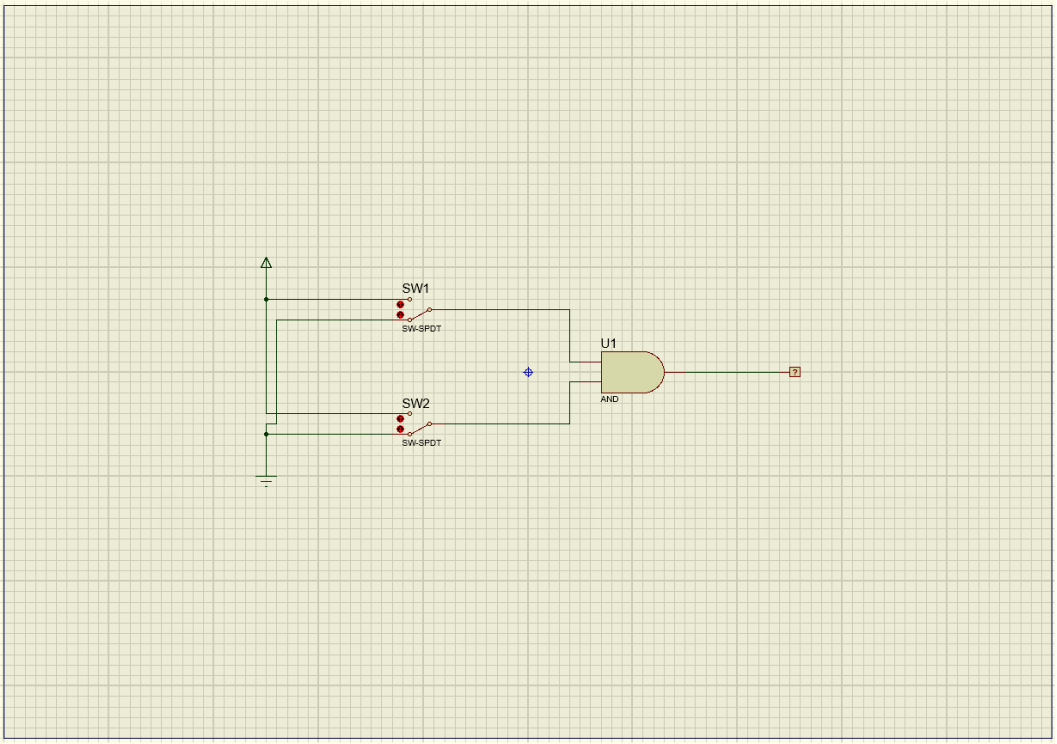
3. Karnaugh map

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

4. Boolean functions based on karnaugh map

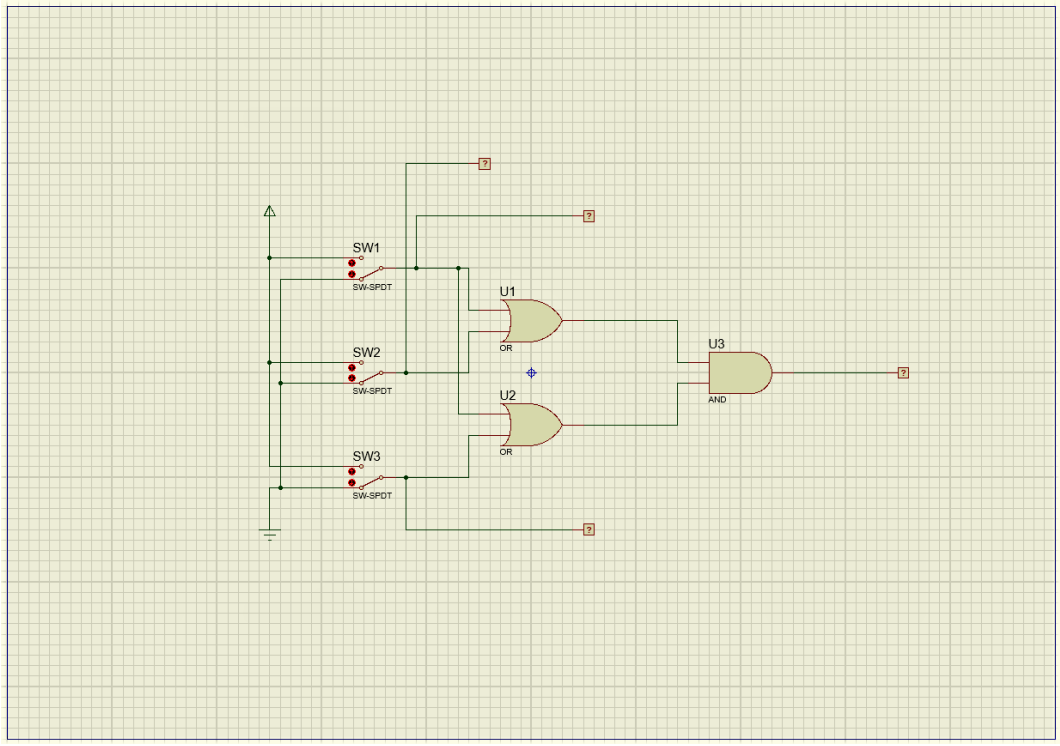
   F = AC

5. Logic gate combination based on new boolean functions



Picture 1.2. New logic gate combination

Experiment 2



Picture 2.1. Logic gate combination

1. Boolean functions

   F = ABC+AC

2. Truth table

A	B	C	F
0	0	0	0
1	0	0	1
0	1	0	0
1	1	0	1
0	0	1	0
1	0	1	1
0	1	1	1
1	1	1	1

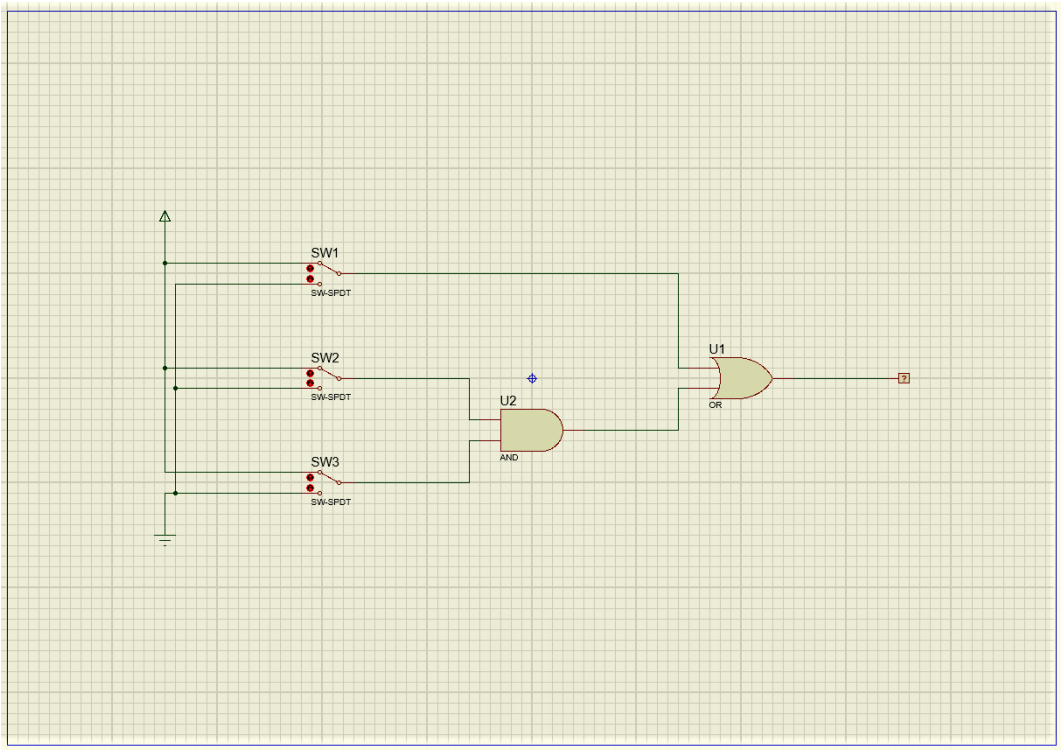
3. Karnaugh map

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

4. Boolean functions based on karnaugh map

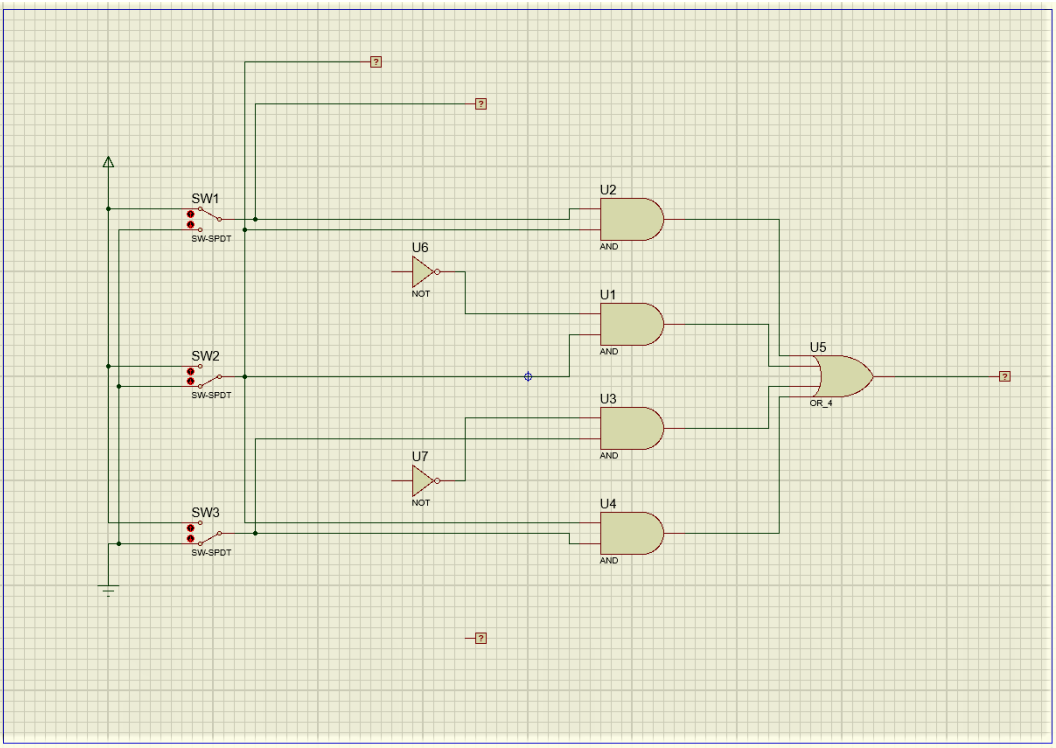
   A+BC

5. Logic gate combination based on new boolean functions



Picture 2.2. New logic gate combination

Experiment 3



Picture 3.1. Logic gate combination

1. Boolean function

   F = AB+A'B+B'C+BC

2. Truth table

A	B	C	F
0	0	0	0
1	0	0	0
0	1	0	1
1	1	0	1
0	0	1	1
1	0	1	1
0	1	1	1
1	1	1	1

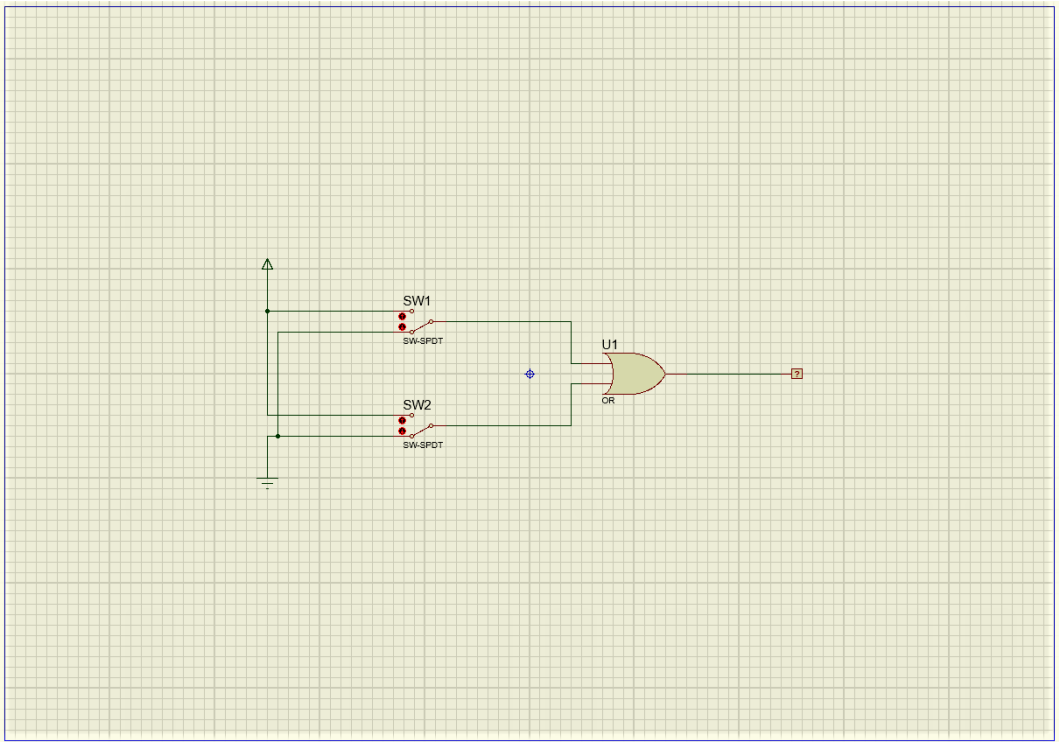
3. Karnaugh map

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

4. Boolean functions based on karnaugh map

   B+C

5. Logic gate combination based on new boolean functions



Picture 3.2. New logic gate combination