MHXANIKΩN H/Y KAI ΠΛΗΡΟΦΟΡΙΚΗΣ
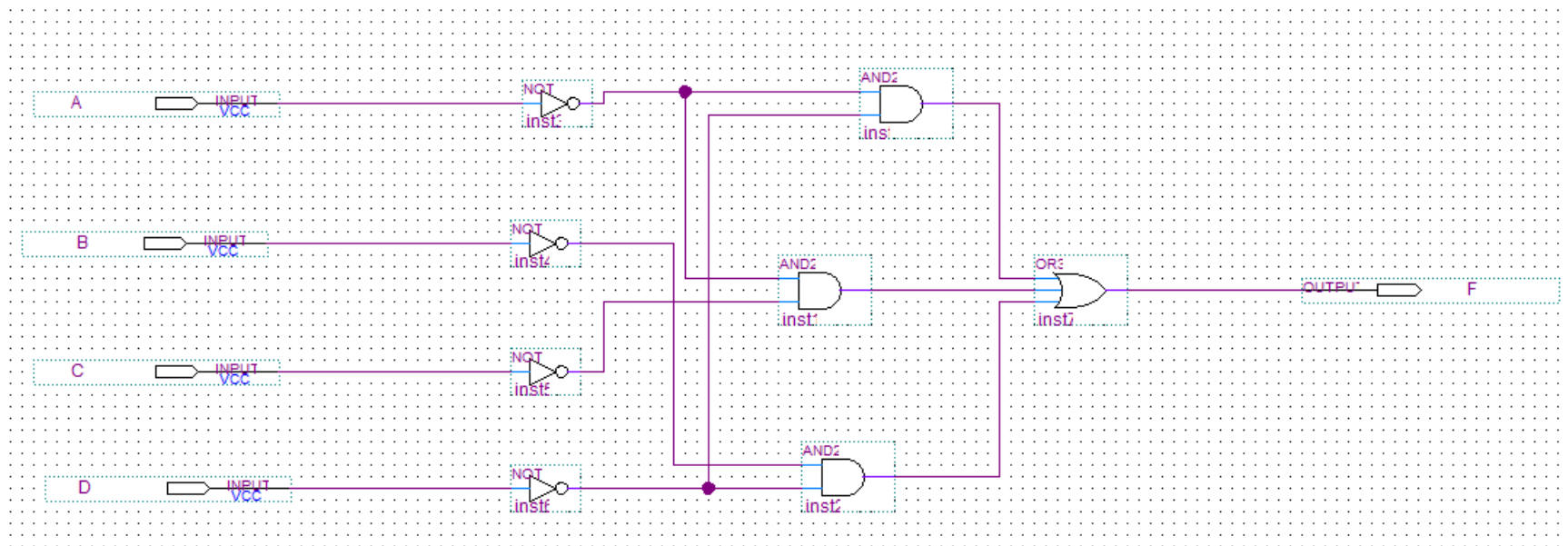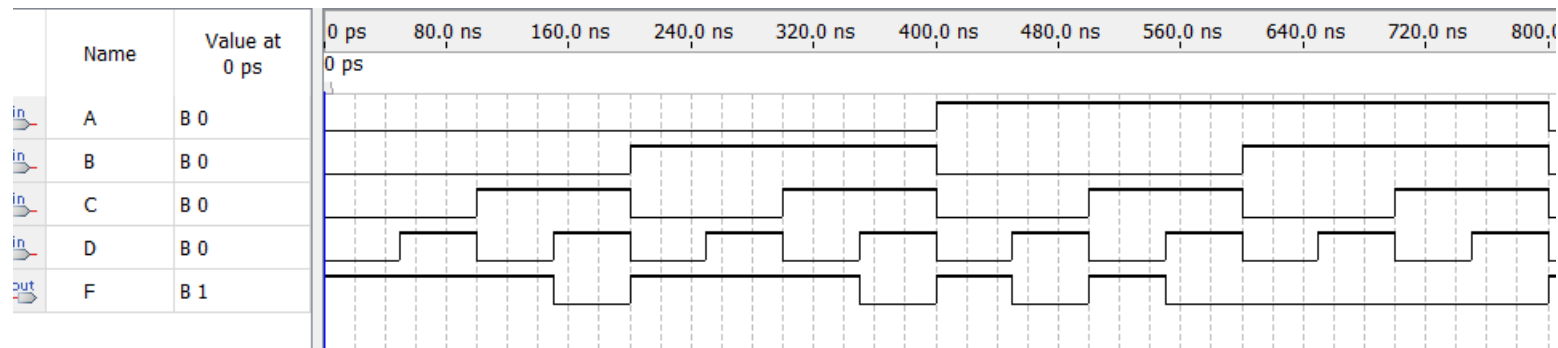
ΔΕΥΤΕΡΗ ΕΡΓΑΣΤΗΡΙΑΚΗ ΑΣΚΗΣΗ

Ερώτημα 1:

Το κύκλωμα :


```
           Command: quartus_eda --read_settings_files=off --write_settings_files=off Question1 -c Question1
    204026 Generated files "Question1.vho", "Question1_fast.vho", "Question1_vhd.sdo" and "Question1_vhd_fast.sdo" in directory "C:/altera/13.
           Quartus II 64-Bit EDA Netlist Writer was successful. 0 errors, 0 warnings
    293000 Quartus II Full Compilation was successful. 0 errors, 12 warnings
```

Πίνακας Αληθείας :

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

ΕΛΑΧΙΣΤΟΡΟΙ : Σ(0,1,2,4,5,6,8,10)

ΜΕΓΙΣΤΟΡΟΙ : Π(3,7,9,11)

Χάρτης Karnaugh:

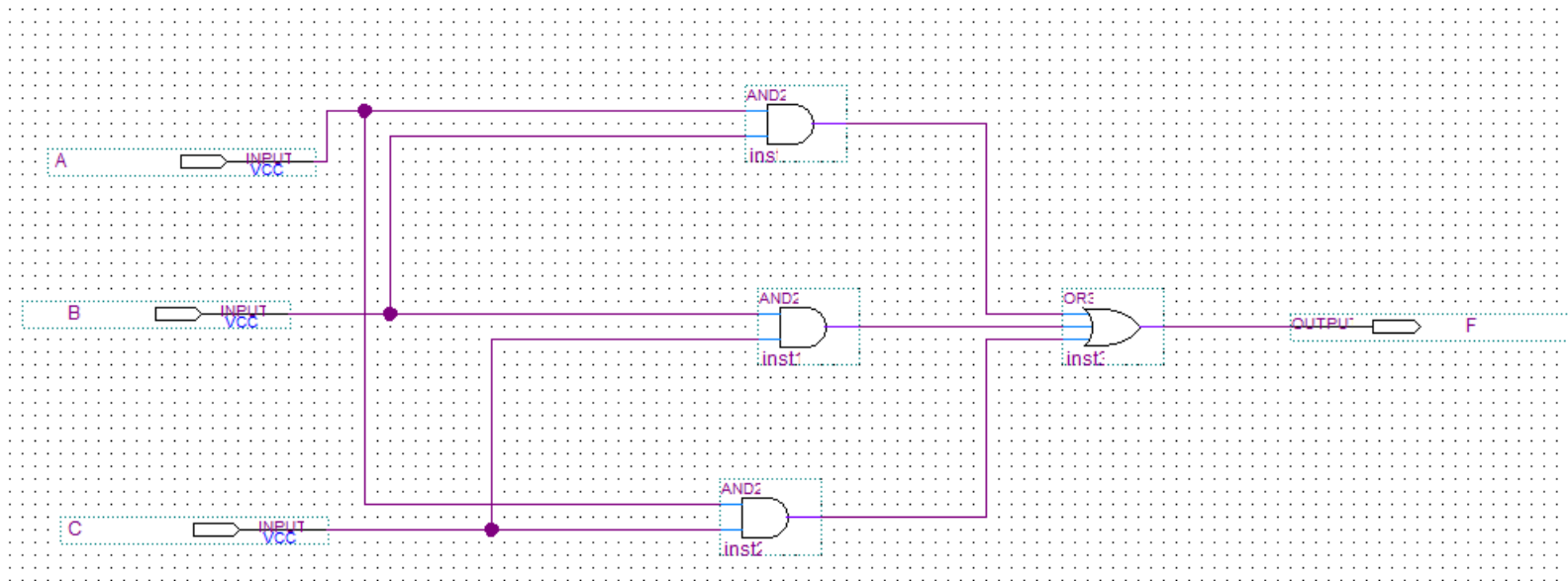| CD AB			

m0
    1
	m1
	    1
		m3
		    0
			m2
			    1

m4
    1
	m5
	    1
		m7
		    0
			m6
			    1

m12
    0
	m13
	    0
		m15
		    0
			m14
			    0

m8
    1
	m9
	    0
		m11
		    0
			m10
			    1

Πήρα την ομάδα (m0,m1,m4,m5) έπειτα την ομάδα (m0, m4) μαζί με την(m2, m6) και τέλος όλες τις άκρες (m0 ,m2, m8, m10)
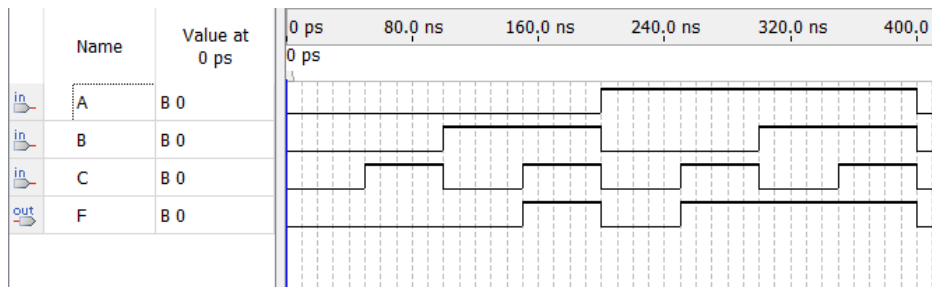
Η Απλοποίημενη Συνάρτηση : F = A'C + A'D' + B'D'

Ερώτημα 2 :

Το κύκλωμα :

        Command: quartus_eda --read_settings_files=off --write_settings_files=off Question2 -c Question2
204026 Generated files "Question2.vho", "Question2_fast.vho", "Question2_vhd.sdo" and "Question2_vhd_fast.sdo" in directory "C:/altera/13.0sp1/digital di/exercise _2/question2/simulat
        Quartus II 64-Bit EDA Netlist Writer was successful. 0 errors, 0 warnings
293000 Quartus II Full Compilation was successful. 0 errors, 12 warnings

Πίνακας Αληθείας :

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

Χάρτης Karnaugh:

BC / A	00	01	11	10
0	m0 0	m1 0	m3 1	m2 0
0	m4 0	m5 1	m7 1	m6 1

Πήρα την ομάδα (m3, m7) έπειτα την ομάδα (m5, m7) και τέλος την ομάδα (m7, m6)

Η Απλοποίημενη Συνάρτηση :

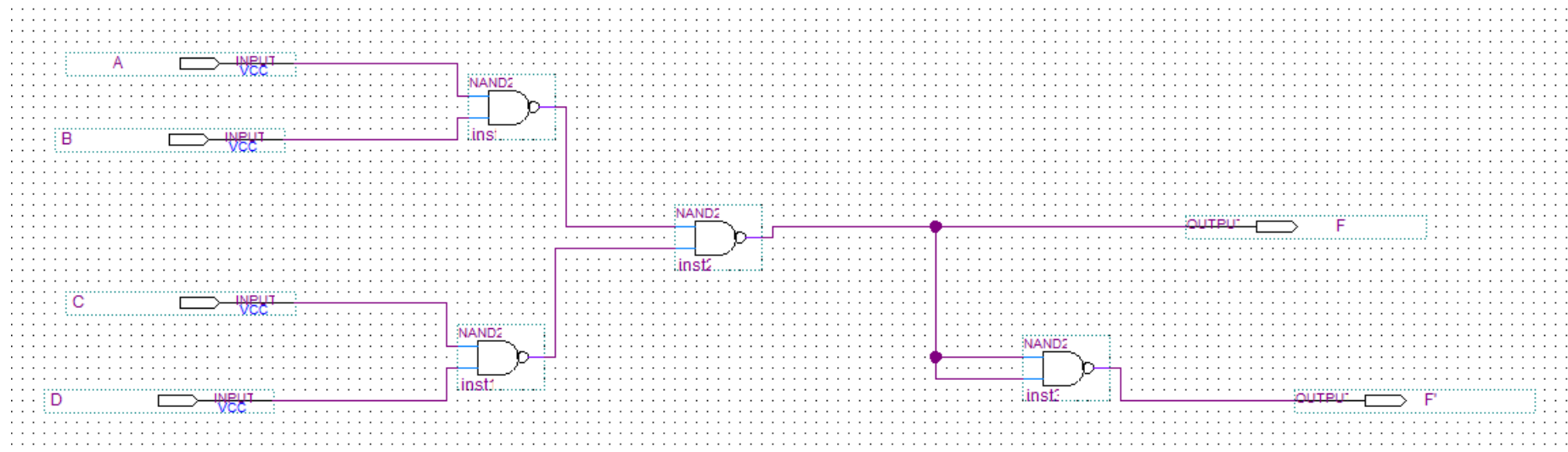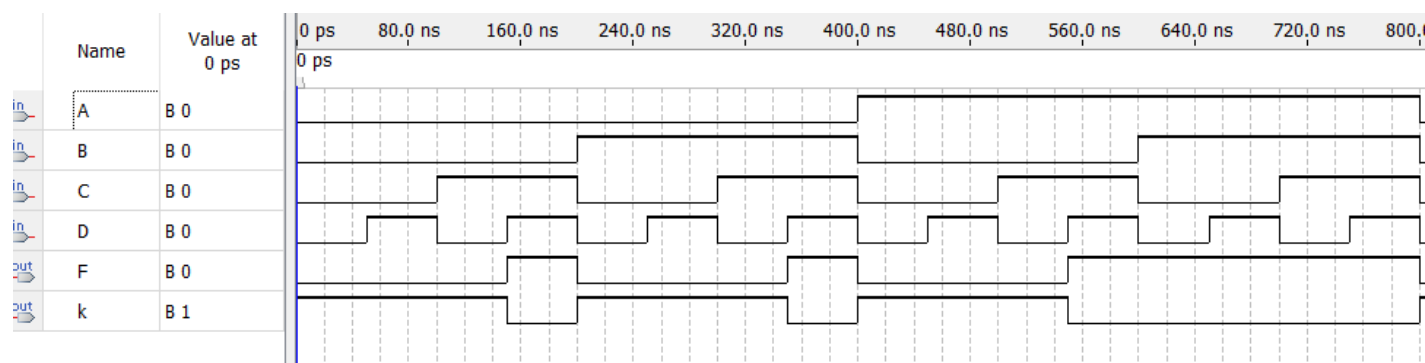F = BC + AC + AB

Ερώτημα 3 :

Το κύκλωμα :

Πύλες NAND

F=AB + CD   K = F' = (A'+B')(C'+D')

ⓘ   Command: quartus_eda --read_settings_files=off --write_settings_files=off Question3 -c Question3
ⓘ 204026 Generated files "Question3.vho", "Question3_fast.vho", "Question3_vhd.sdo" and "Question3_vhd_fast.sdo" in directory "C:/altera/13.0sp1/digital di/exercise _2/question3/simula
ⓘ   Quartus II 64-Bit EDA Netlist Writer was successful. 0 errors, 0 warnings
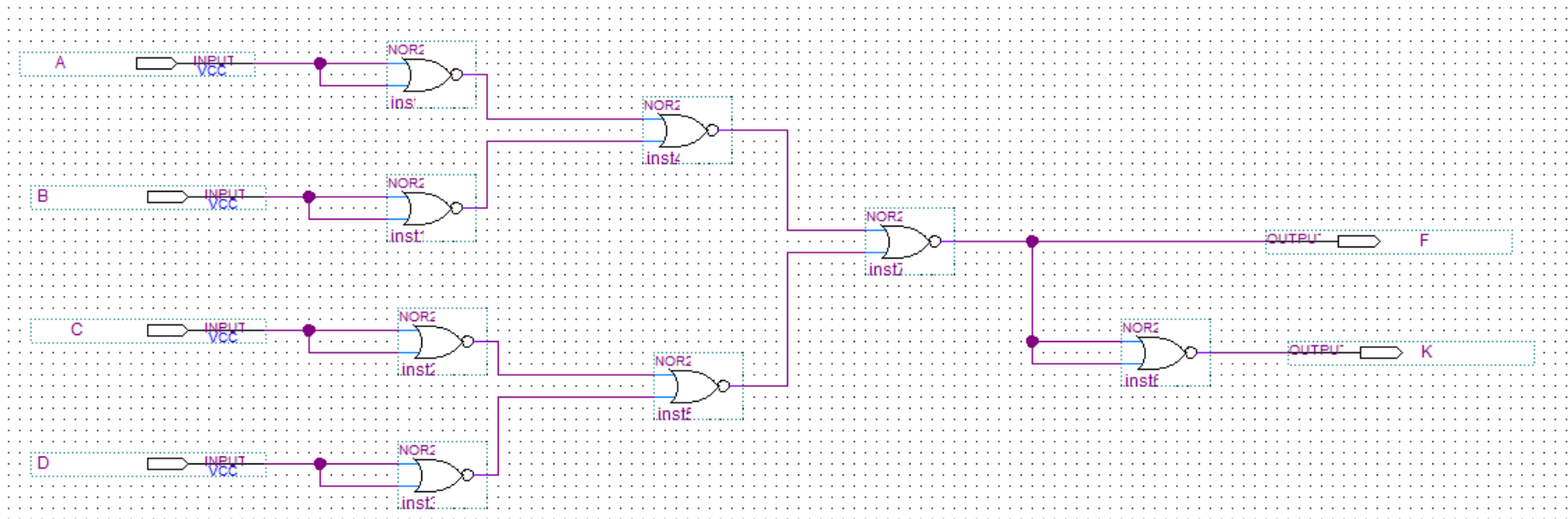ⓘ 293000 Quartus II Full Compilation was successful. 0 errors, 12 warnings

Πίνακας Αληθείας :

A	B	C	D	F	F'(K)
0	0	0	0	0	1
0	0	0	1	0	1
0	0	1	0	0	1
0	0	1	1	1	0
0	1	0	0	0	1
0	1	0	1	0	1
0	1	1	0	0	1
0	1	1	1	1	0
1	0	0	0	0	1
1	0	0	1	0	1
1	0	1	0	0	1
1	0	1	1	1	0
1	1	0	0	1	0
1	1	0	1	1	0
1	1	1	0	1	0
1	1	1	1	1	0

Πύλες NOR

    Command: quartus_eda --read_settings_files=off --write_settings_files=off Question3_1 -c Question3_1
204026 Generated files "Question3_1.vho", "Question3_1_fast.vho", "Question3_1_vhd.sdo" and "Question3_1_vhd_fast.sdo" in directory "C:/altera/13.0sp1/digital di/exercise _2/question3
    Quartus II 64-Bit EDA Netlist Writer was successful. 0 errors, 0 warnings
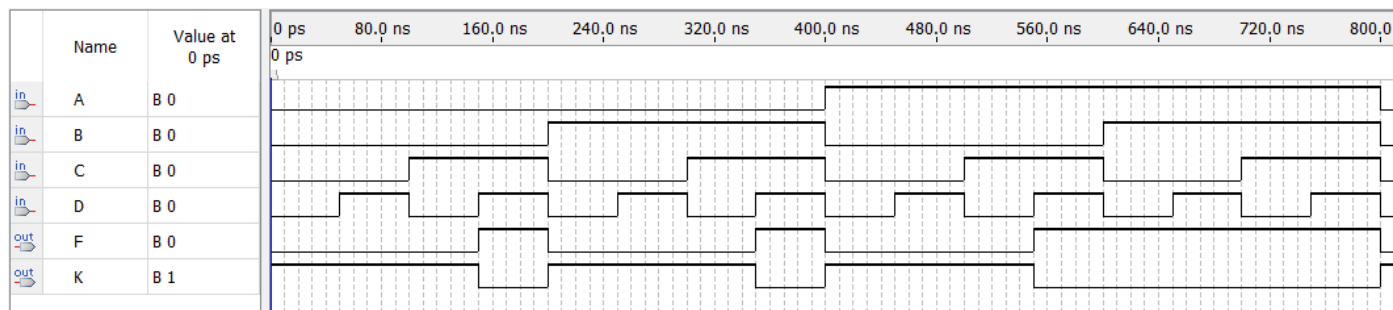293000 Quartus II Full Compilation was successful. 0 errors, 12 warnings

Πίνακας Αληθείας :

A	B	C	D	F	F'(K)
0	0	0	0	0	1
0	0	0	1	0	1
0	0	1	0	0	1
0	0	1	1	1	0
0	1	0	0	0	1
0	1	0	1	0	1
0	1	1	0	0	1
0	1	1	1	1	0
1	0	0	0	0	1
1	0	0	1	0	1
1	0	1	0	0	1
1	0	1	1	1	0
1	1	0	0	1	0
1	1	0	1	1	0
1	1	1	0	1	0
1	1	1	1	1	0