Faculty of Engineering and Technology

Department of Electrical and Computer Engineering

DIGITAL ELECTRONICS AND COMPUTER ORGANIZATION LABORATORY (ENCS2110)

"Post-Lab2"

Prepared by:

Name: Eman Asfour Number: 1200206

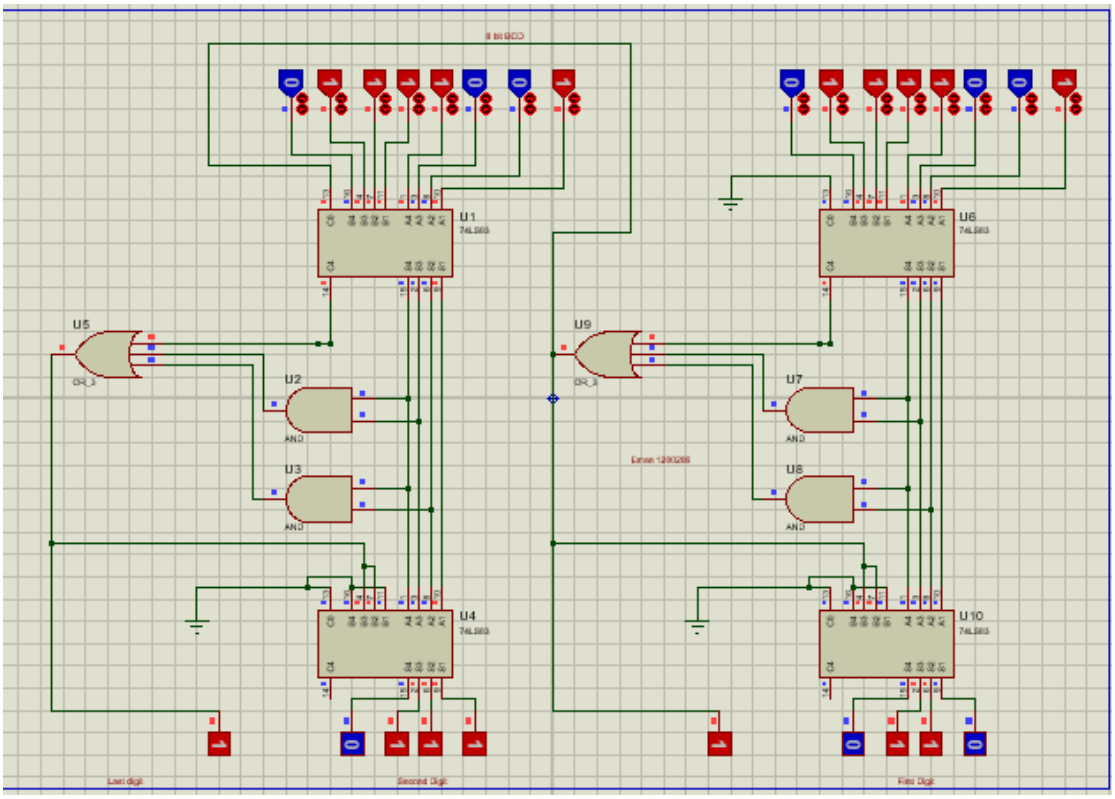
Instructor: Dr. Jamal Seyam

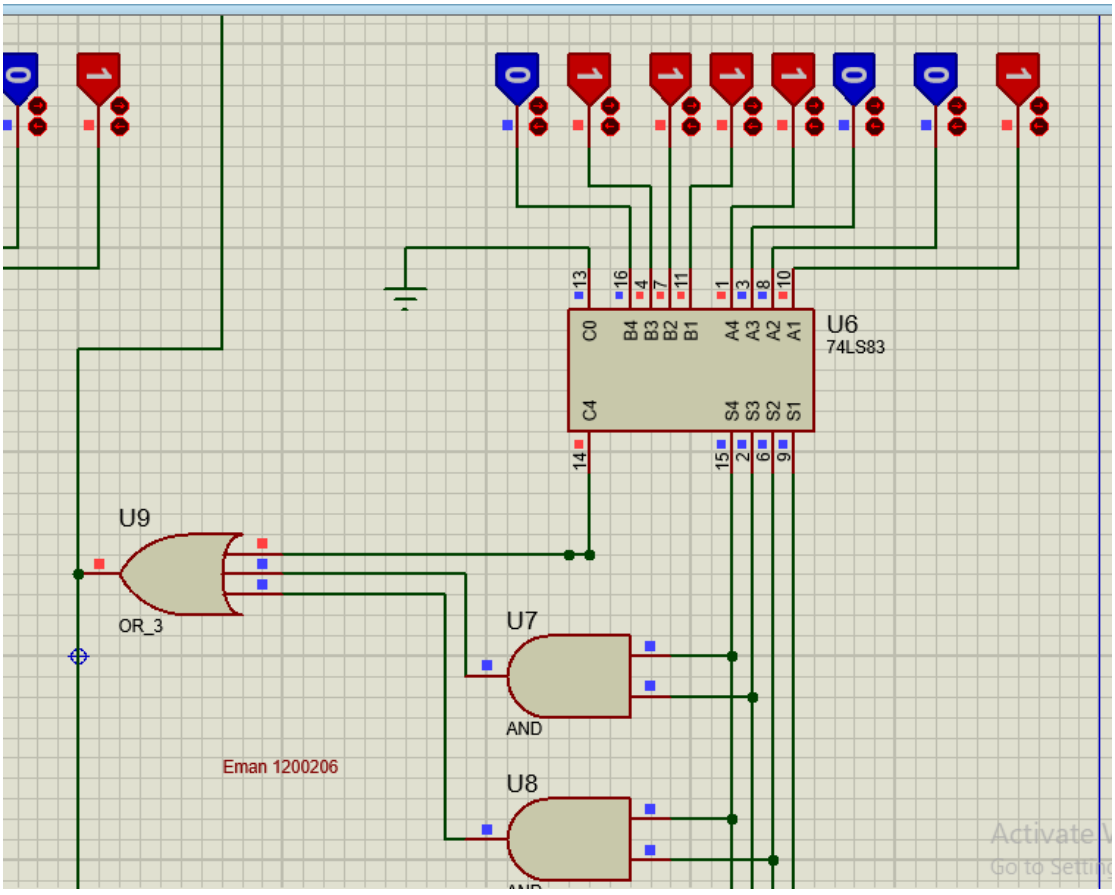
Eng. Haleema Hmedan

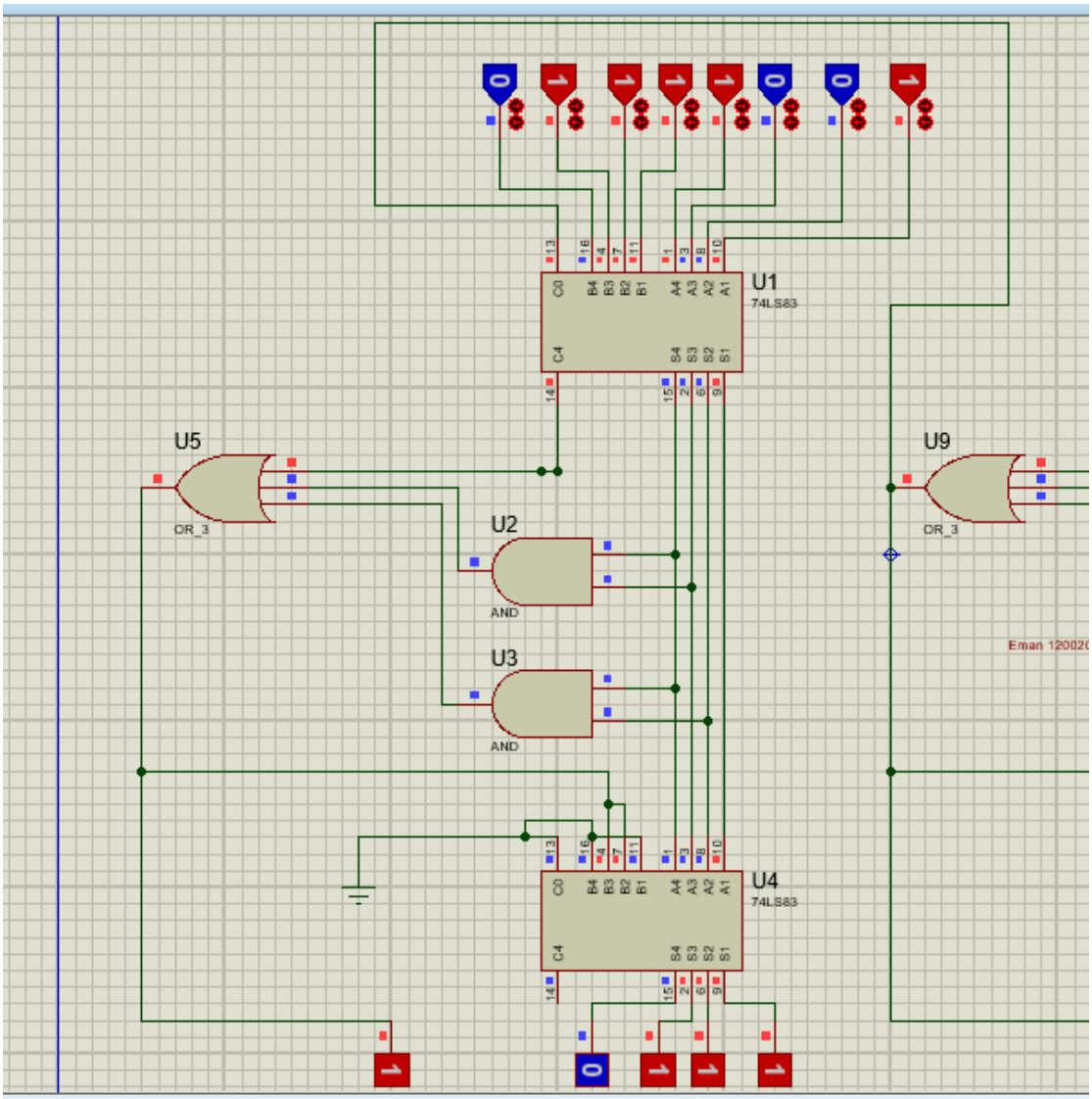
Section: 4

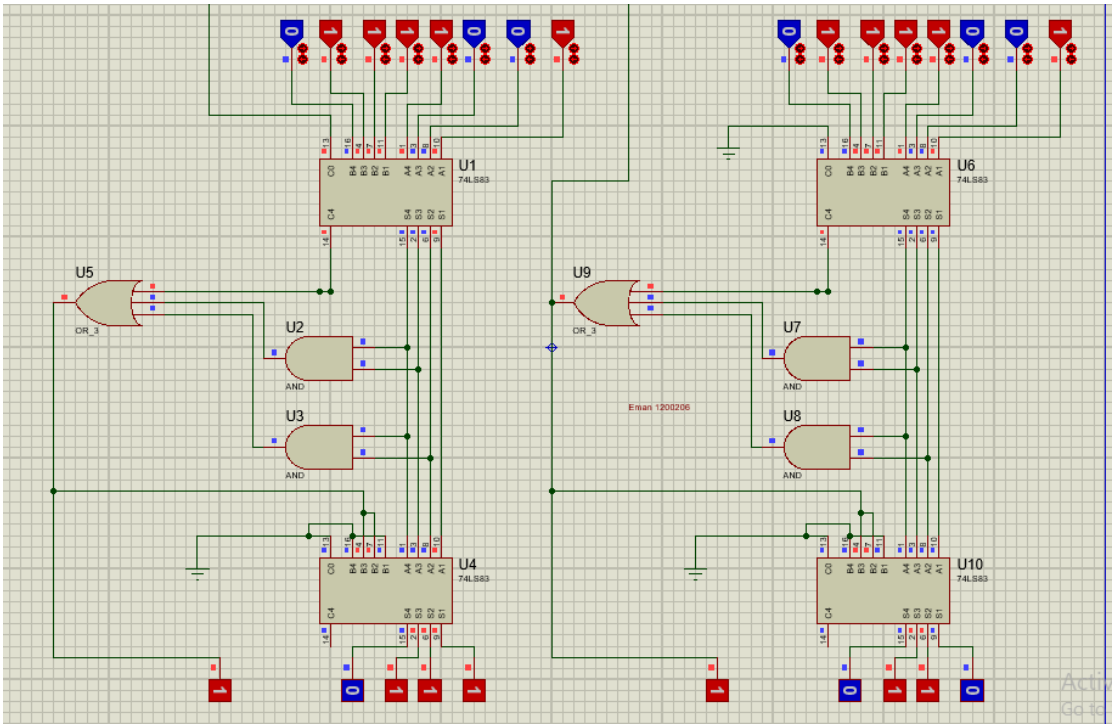
Date: 8 / 11 / 2023

1. Design an 8-bit BCD adder




U6
74LS83
C0
B4
B3
B2
B1
A4
A3
A2
A1
C4
S4
S3
S2
S1
U9
OR_3
U7
AND
U8
Eman 1200206


U1
74LS83
U4
74LS83
U5
OR_3
U9
OR_3
U2
AND
U3
AND



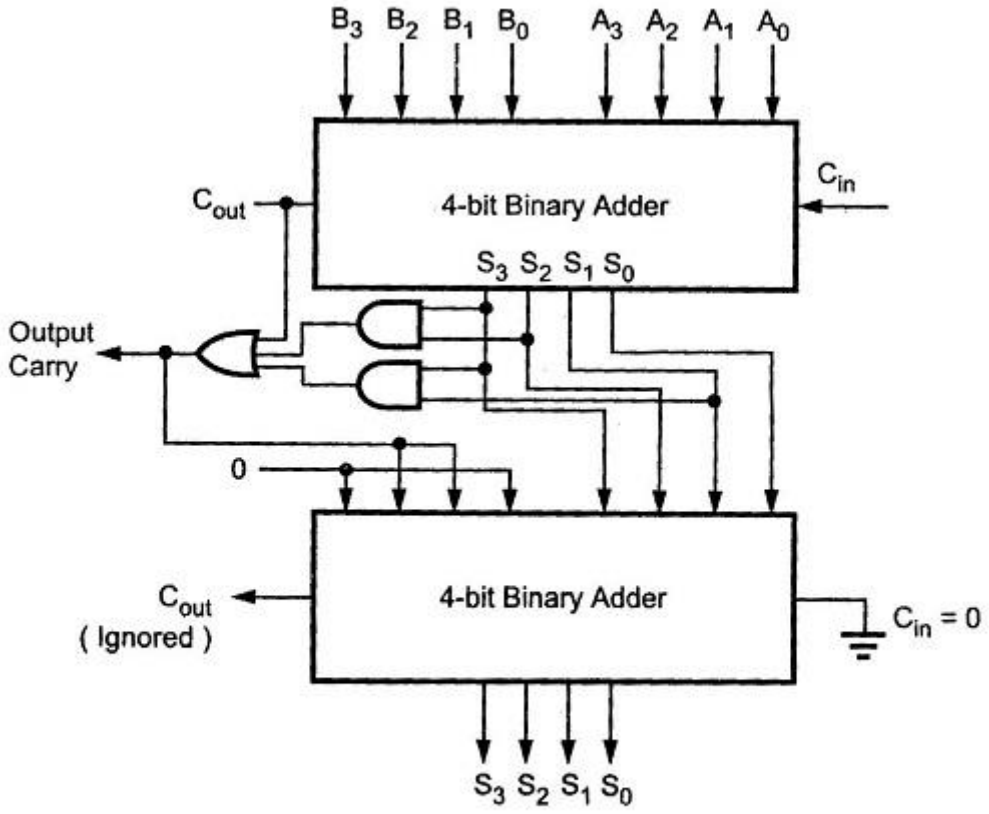
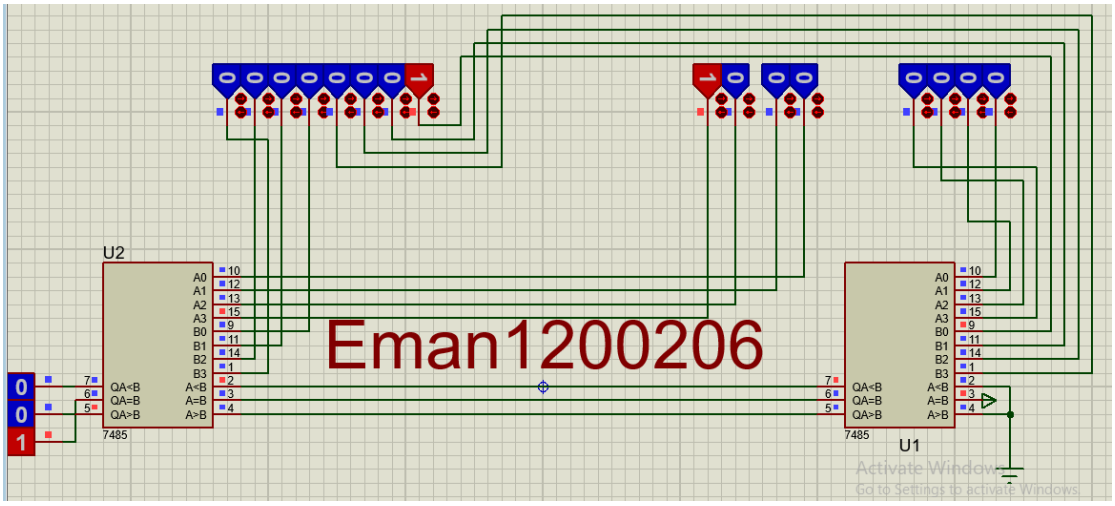
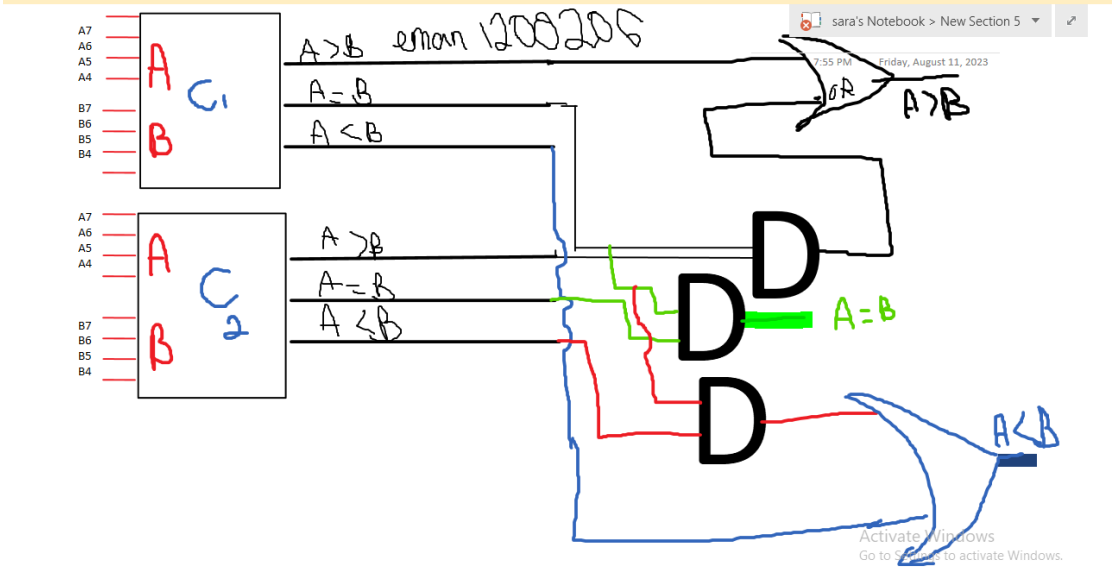


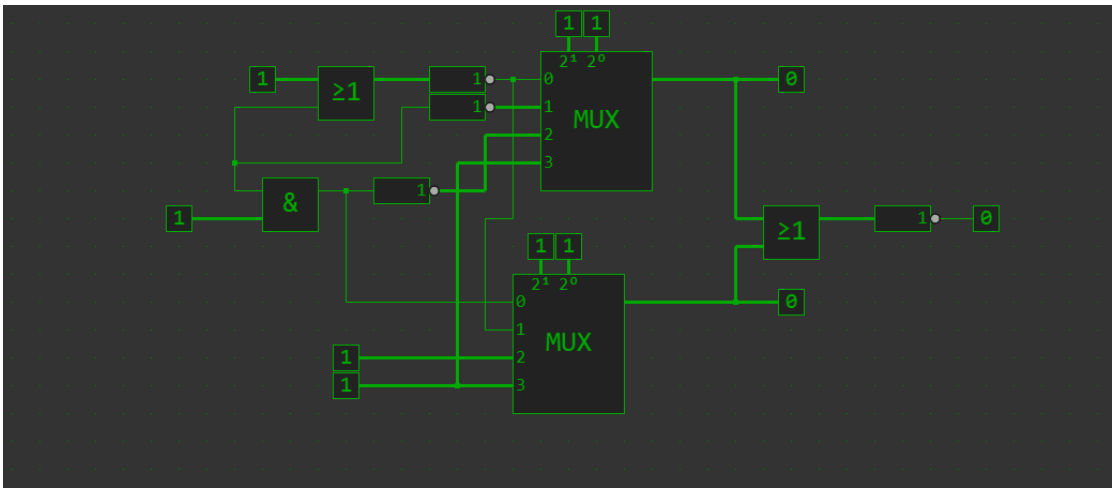
Fig. 3.32 Block diagram of BCD adder

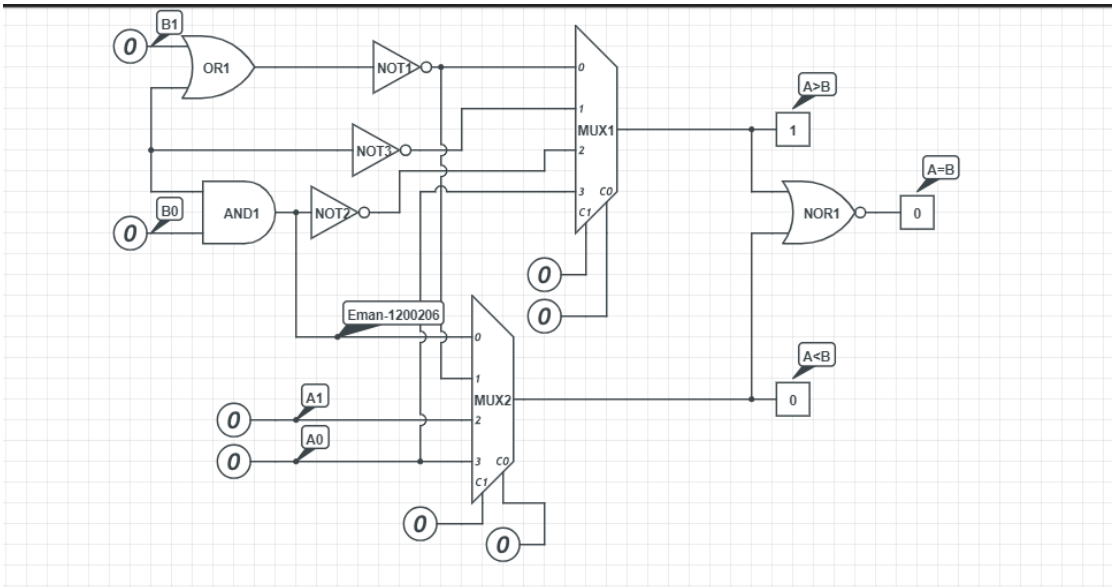
2. Design an 8-bit comparator using 2 of the 4-bit comparator.

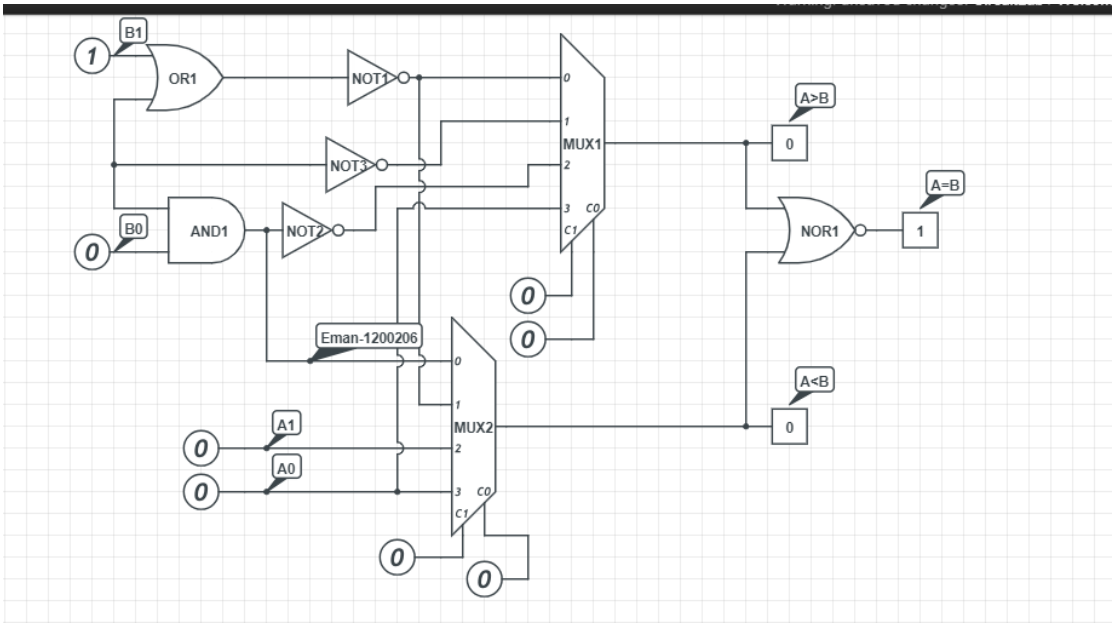


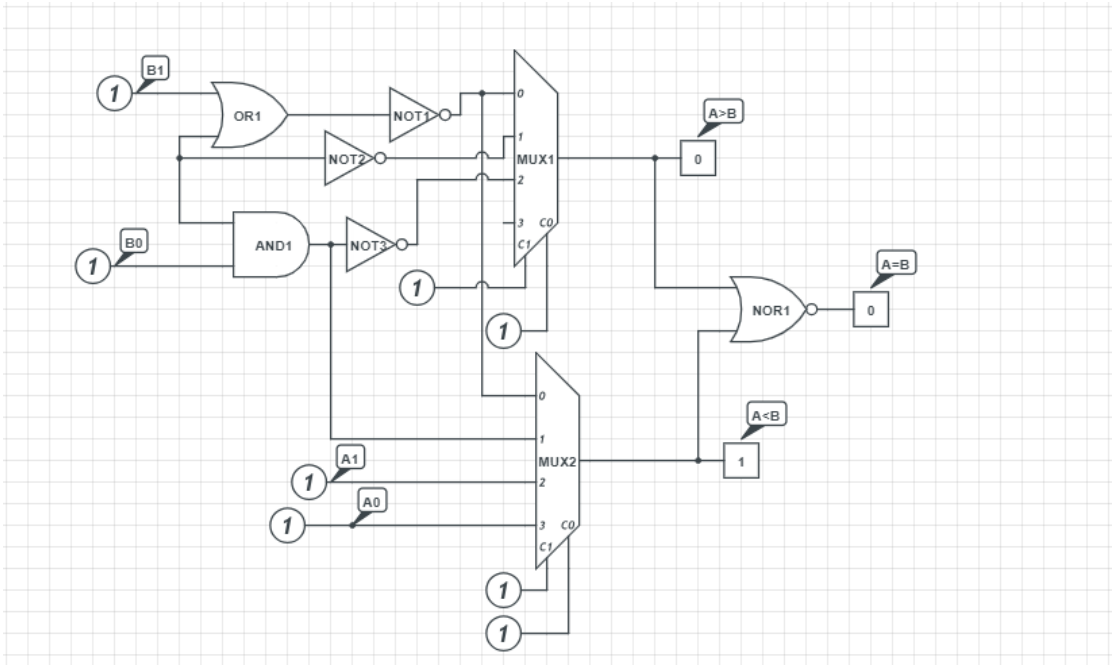


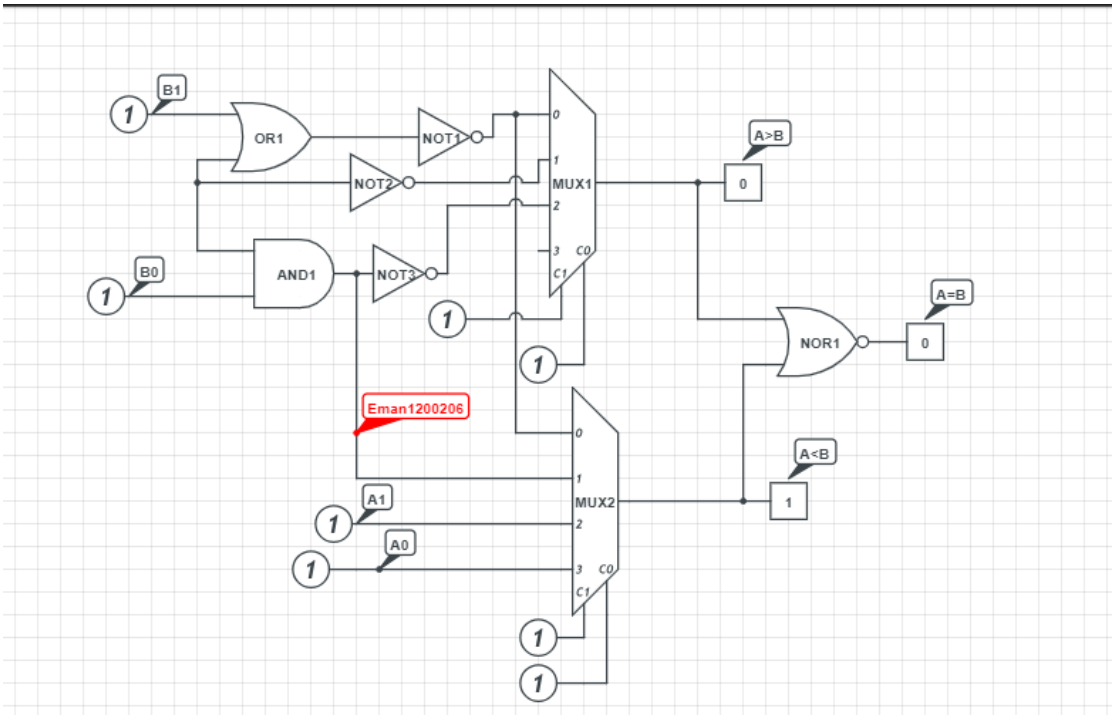
3.A 4-inputs, 3-outputs circuit that compares 2-bit unsigned numbers and outputs a ‘1’ on one of three output lines according to whether the first number is greater than, equal to, or less than the other number. You can only use two 4×1 multiplexer.

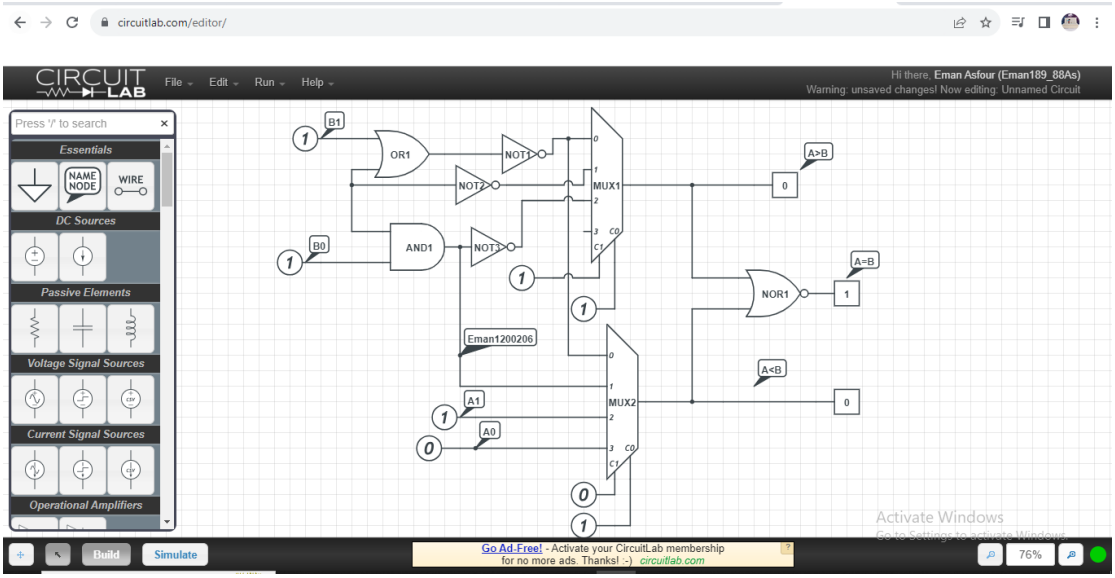





B1
OR1
NOT1
NOT3
MUX1
A>B
0
B0
AND1
NOT2
A=B
NOR1
1
Eman-1200206
MUX2
A<B
A1
A0


B1
OR1
NOT1
NOT2
MUX1
A>B
0
B0
AND1
NOT3
A=B
NOR1
MUX2
A<B
1
A1
A0





A1	A0	B1	B0	Sel1	Sel0	Sel1	Sel0	GreaterThan	EqualTo	LessThan
0	0	0	0	0	0	0	0	1	0	1
0	0	0	1	0	1	0	1	1	0	0
0	0	1	0	1	0	1	0	1	0	0
0	0	1	1	1	1	1	1	0	1	0
0	1	0	0	0	0	0	0	1	0	1
0	1	0	1	0	1	0	1	1	0	0