Faculty of Engineering and Technology

Electrical and Computer Engineering Department

Digital Lab (ENCS2110)

Experiment No.4 PostLab

Title: Digital Circuits Implementation using Breadboard

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Post Lab:

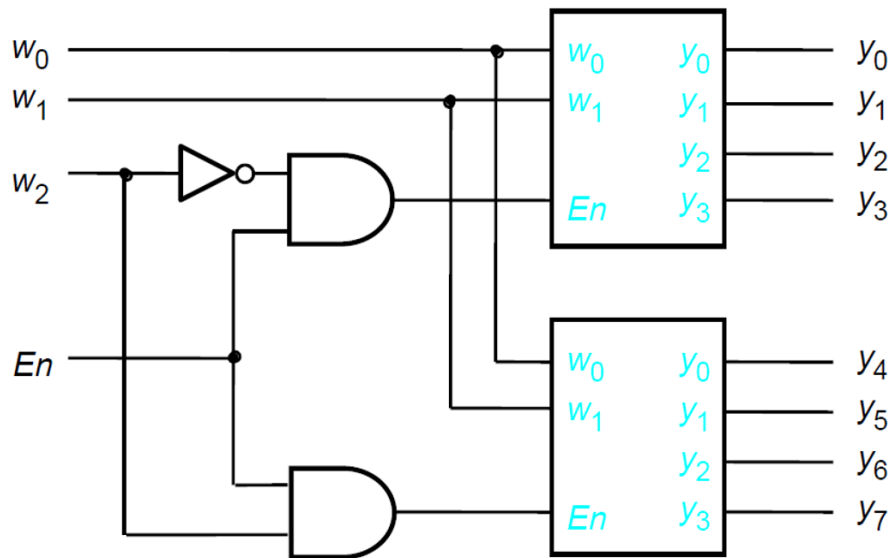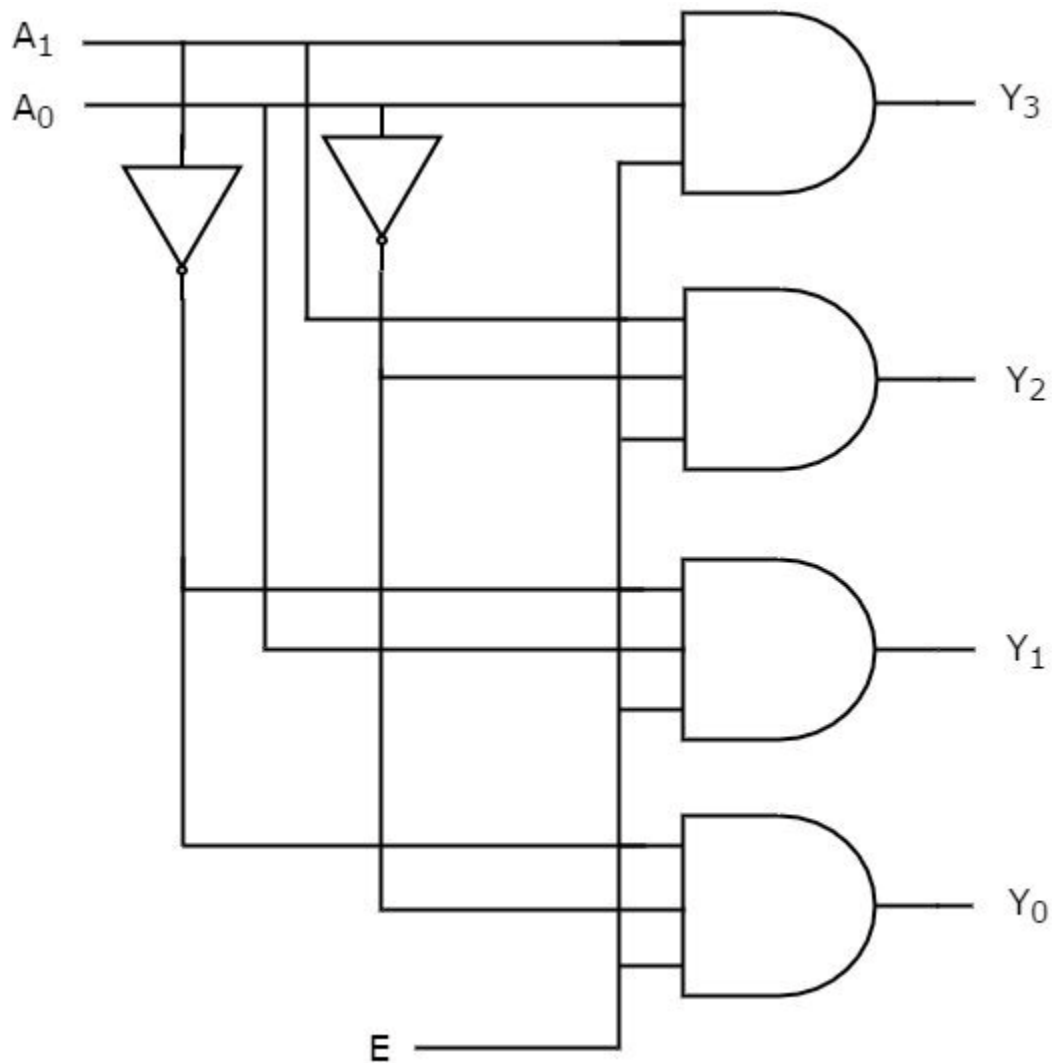A 3-to-8 decoder can be built using two 2-to-4 decoders plus some basic logic gates as shown in the following figure.

Figure 1:3X8 decoder with enable

HomeWork:

2.a: How do you go about adding an Enable (E) signal to the decoder?

3.a:

Use the just constructed 4x1 multiplexer to design a three inputs network that gives 1 if the majority of its inputs are 1 and outputs a zero otherwise .

Sensor
Inputs

A	B	C	Output
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

$\overline{A}BC = 1$

$A\overline{B}C = 1$
$AB\overline{C} = 1$
$ABC = 1$

$$\text{Output} = \overline{A}BC + A\overline{B}C + AB\overline{C} + ABC$$

0

A

A

1

4x1

Multiplexer

Y

B C