



Faculty of Engineering and Technology Department  
of Electrical and Computer Engineering

ENCS 2110

**Digital Electronics and Computer Organization**  
**Lab Experiment No.3 - Encoders, Decoders,**  
**Multiplexers, and Demultiplexers (POST Lab)**

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<b>Section:</b>	<b>4</b>

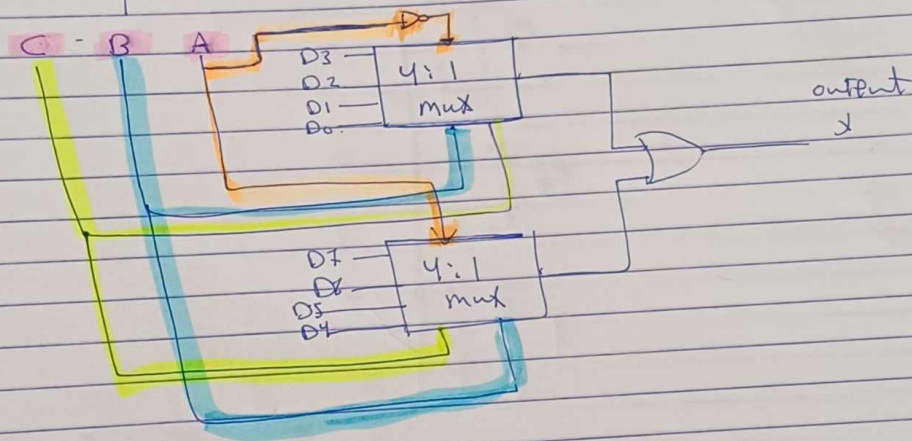
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post lab 3

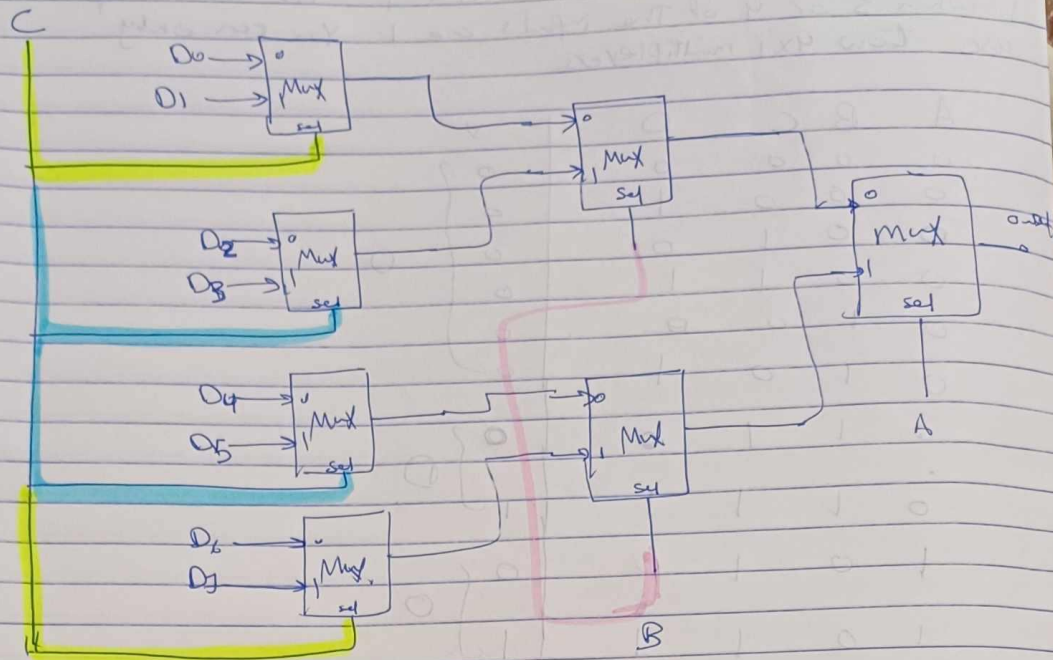
1) Implementation 8x1 Multiplier using lower order Multiplexers  
Show how to solve it

A	B	C	output (x).
0	0	0	D <sub>0</sub>
0	0	1	D <sub>1</sub>
0	1	0	D <sub>2</sub>
0	1	1	D <sub>3</sub>
1	0	0	D <sub>4</sub>
1	0	1	D <sub>5</sub>
1	1	0	D <sub>6</sub>
1	1	1	D <sub>7</sub>



\* I Implement a 8x1 mux using Two 4x1 multiplexers  
(D<sub>0</sub> - D<sub>3</sub>), A=0  
(D<sub>4</sub> - D<sub>7</sub>), A=1

① another way



\*Implemented 8x1 mux using seven 2x1 multiplexer.

② Design a Majority Circuit, a circuit that takes 4 inputs A, B, C, D and 1 output Y. Its output equals 1 when 3 or 4 of the inputs are 1. You can only use two 4x1 multiplexers.

A	B	C	D	Y
0	0	0	0	0
0	0	0	1	0
0	0	1	0	0
0	0	1	1	0
0	1	0	0	0
0	1	0	1	0
0	1	1	0	0
0	1	1	1	1
1	0	1	0	0
1	0	1	1	1
1	1	0	0	0
1	1	0	1	1
1	1	1	0	1
1	1	1	1	1

