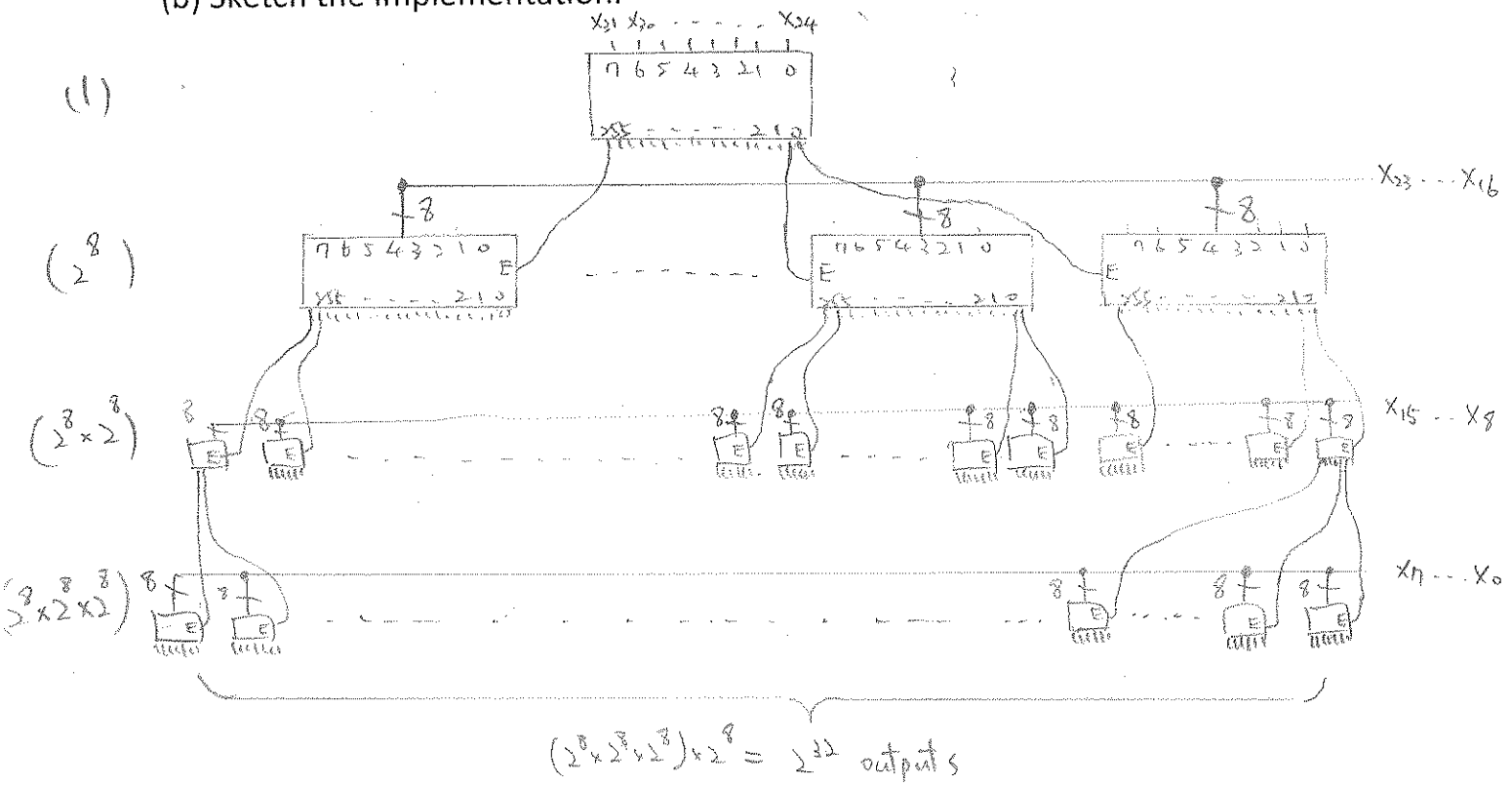
UCLA
Department of Electrical Engineering
EEM16 – Fall 2010
Quiz 3
(This quiz contains 1 problem)

Solution

1. (a) How many 8-input decoders are needed to implement a 32-input decoder using tree decoding?

$$1 + 2^8 + 2^{16} + 2^{24} = \frac{2^{32}-1}{2^8-1}$$

(b) Sketch the implementation.



(c) How many levels are necessary?

4 levels

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Quiz 3 (15 minutes)
Dec 01, 2010

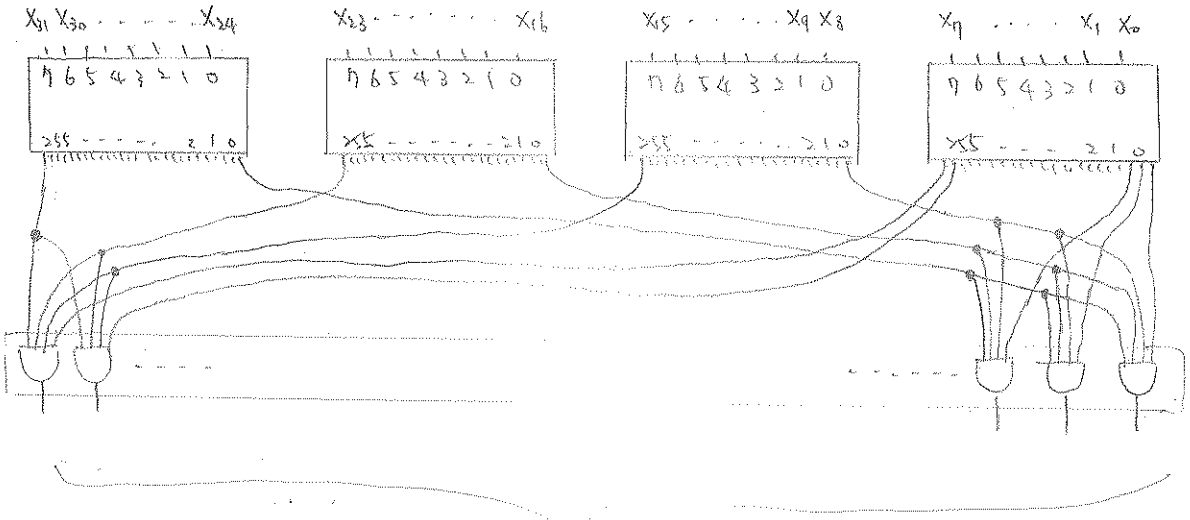
Solution

Problem 1

How many 8-input decoders are needed to implement a 32-input decoder using coincident decoding?

Sketch the implementation.

How many AND gates are needed?



2^{32} x 4-input AND gates

ANS: 4 x 8-input decoders are required!
2^{32} x 4-input AND gates