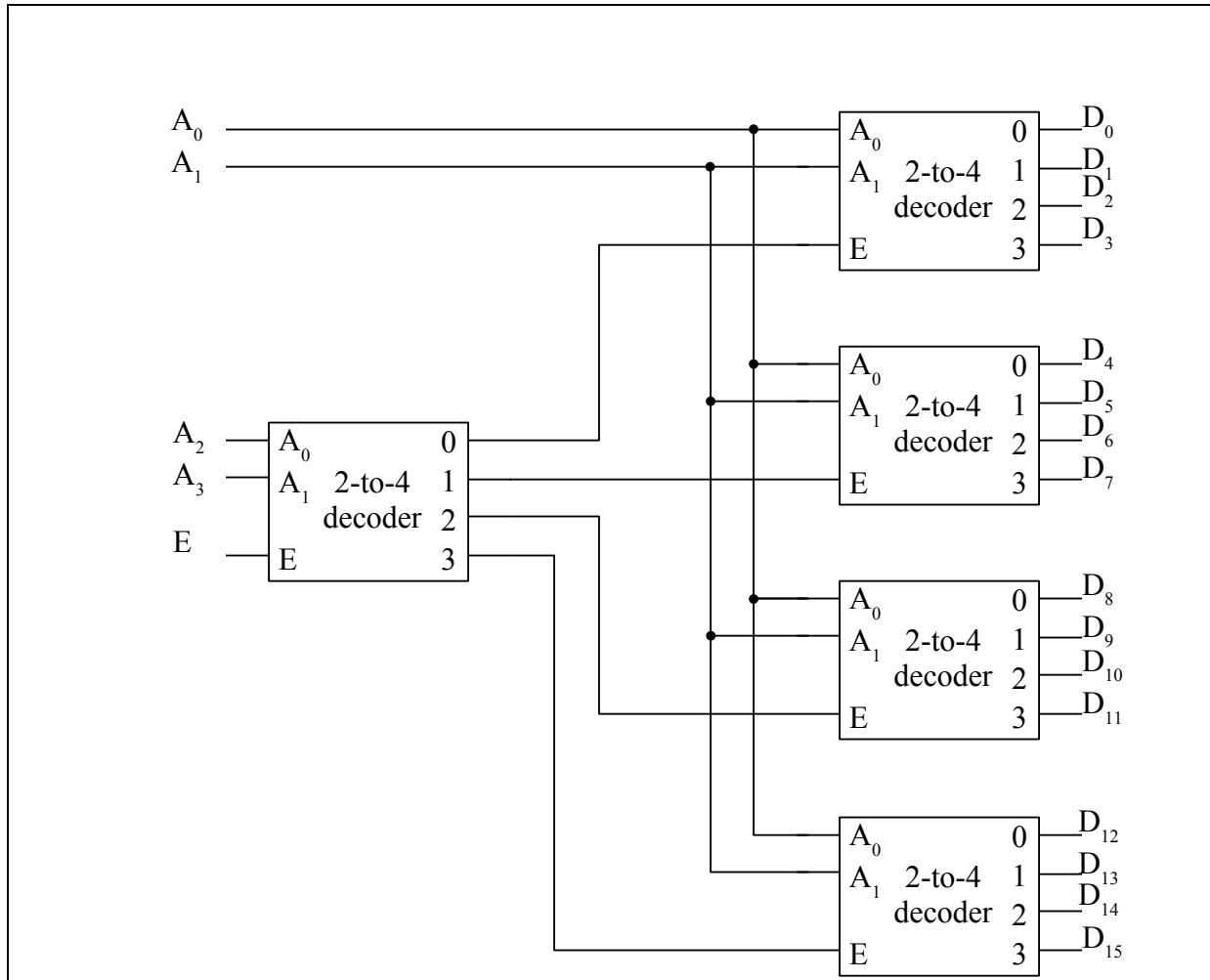


## Cascading of Decoders

Here we are building a 4-to-16 decoder by cascading 2-to-4 decoders.



- First-stage decoder enables & selects second-stage decoders
  - It uses the enable input and the high order address inputs
  - Second-stage decoder
- They use the low order address inputs
  - Produce the outputs

## Rapid Prototyping (part 1)

### Using Decoders

- Analogy: Each output is one minterm of a truth table.
- Function “True”  $\leftrightarrow$  sum of minterms when  $F = 1$ .
- So “OR” appropriate decoder outputs to realize function.

e.g.,  $F_{X,Y} = \sum(0,2)$

A	B	F	O <sub>3</sub>	O <sub>2</sub>	O <sub>2</sub>	O <sub>1</sub>
0	0	1				1
0	1	0			1	
1	0	1		1		
1	1	0	1			

