

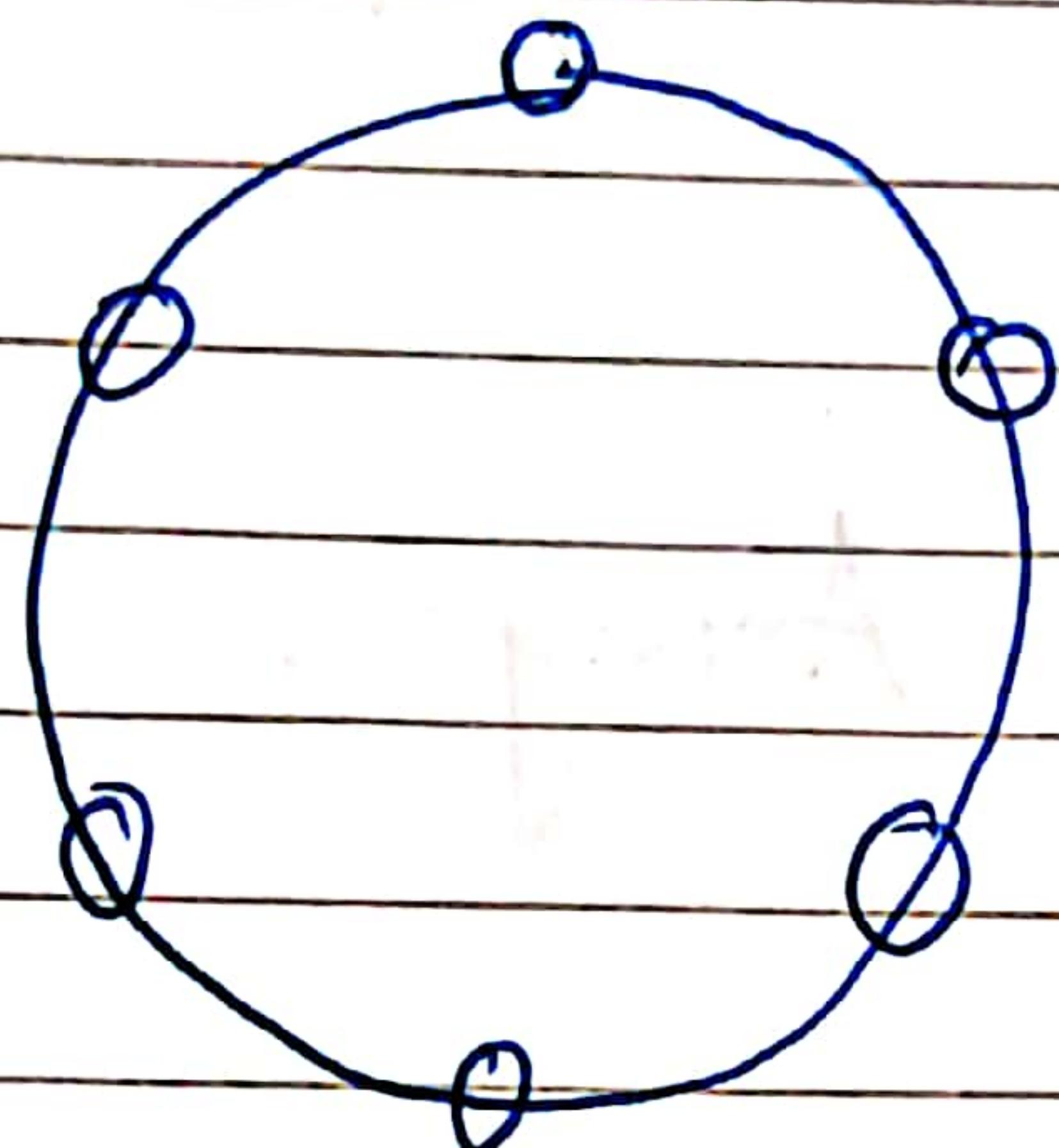
One dimensional

L-15

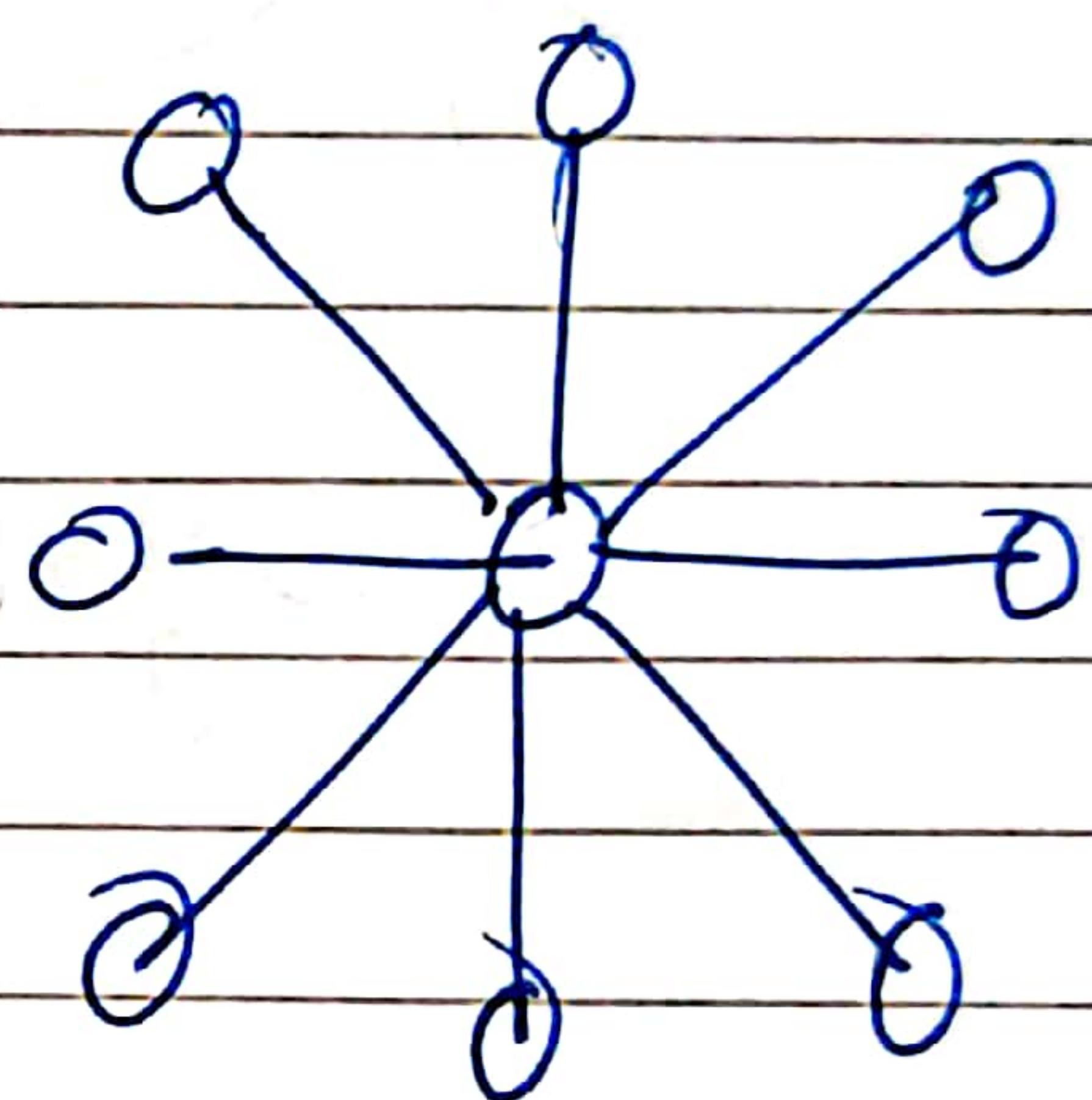


Linear array .

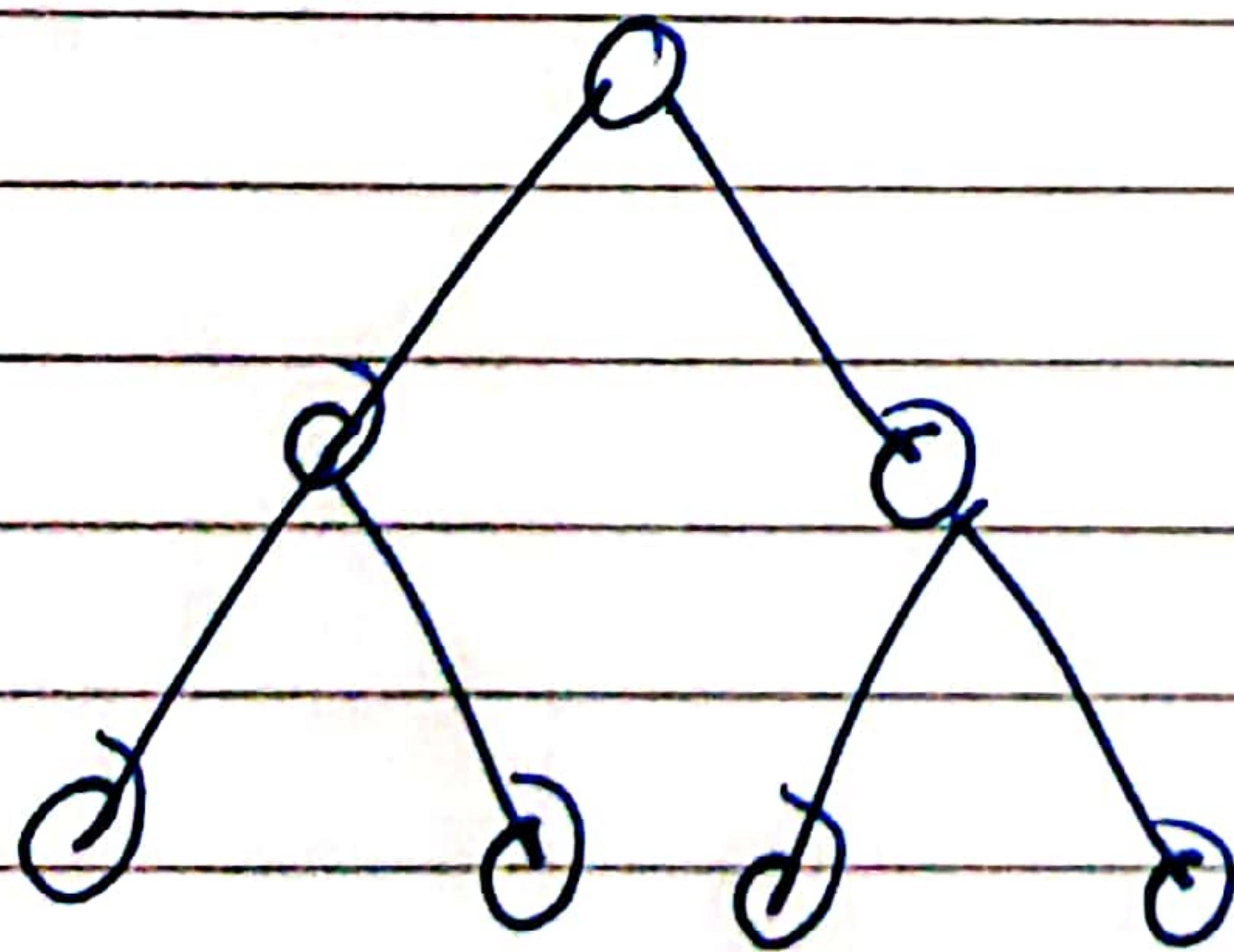
Two dimensional



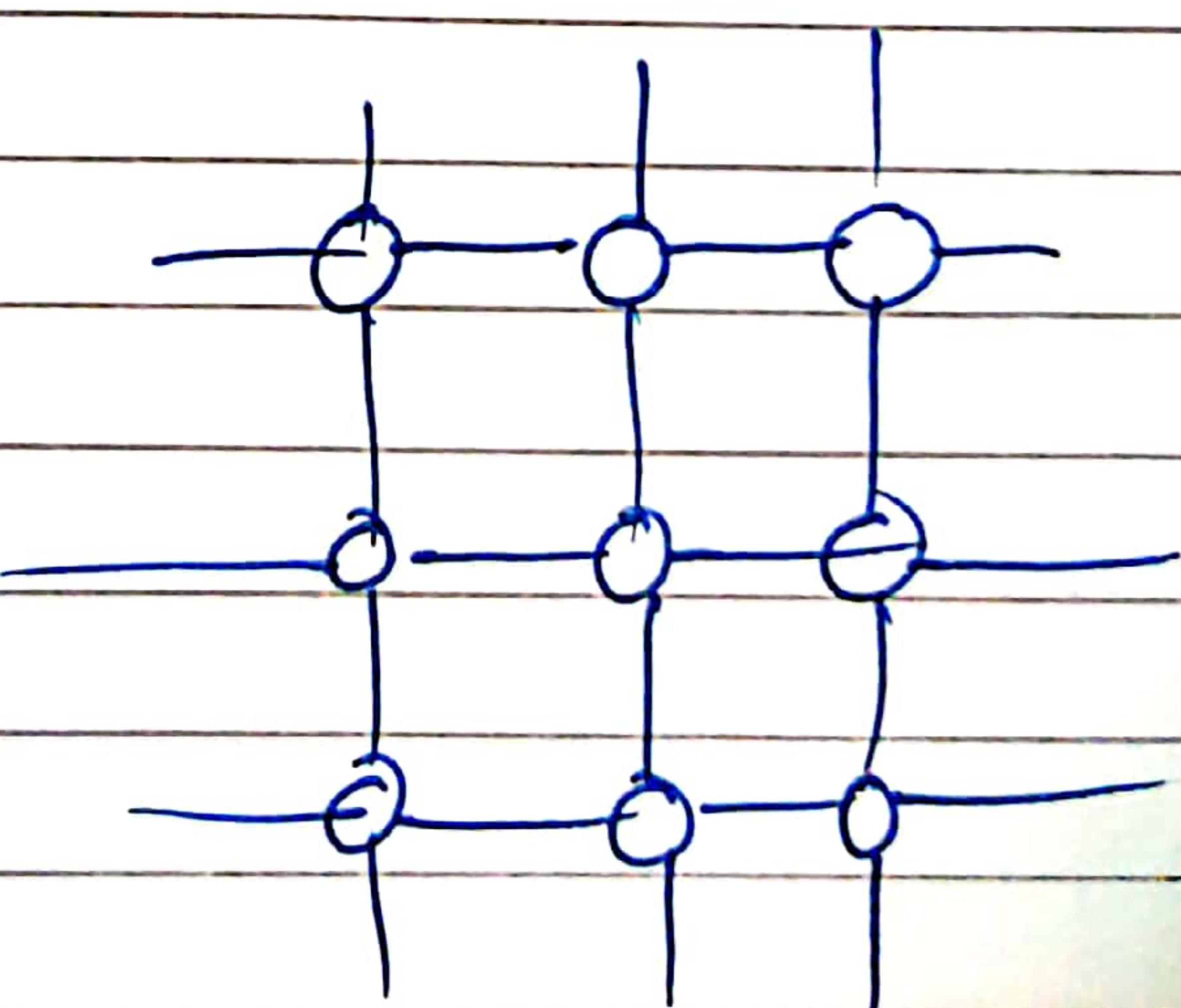
Ring .



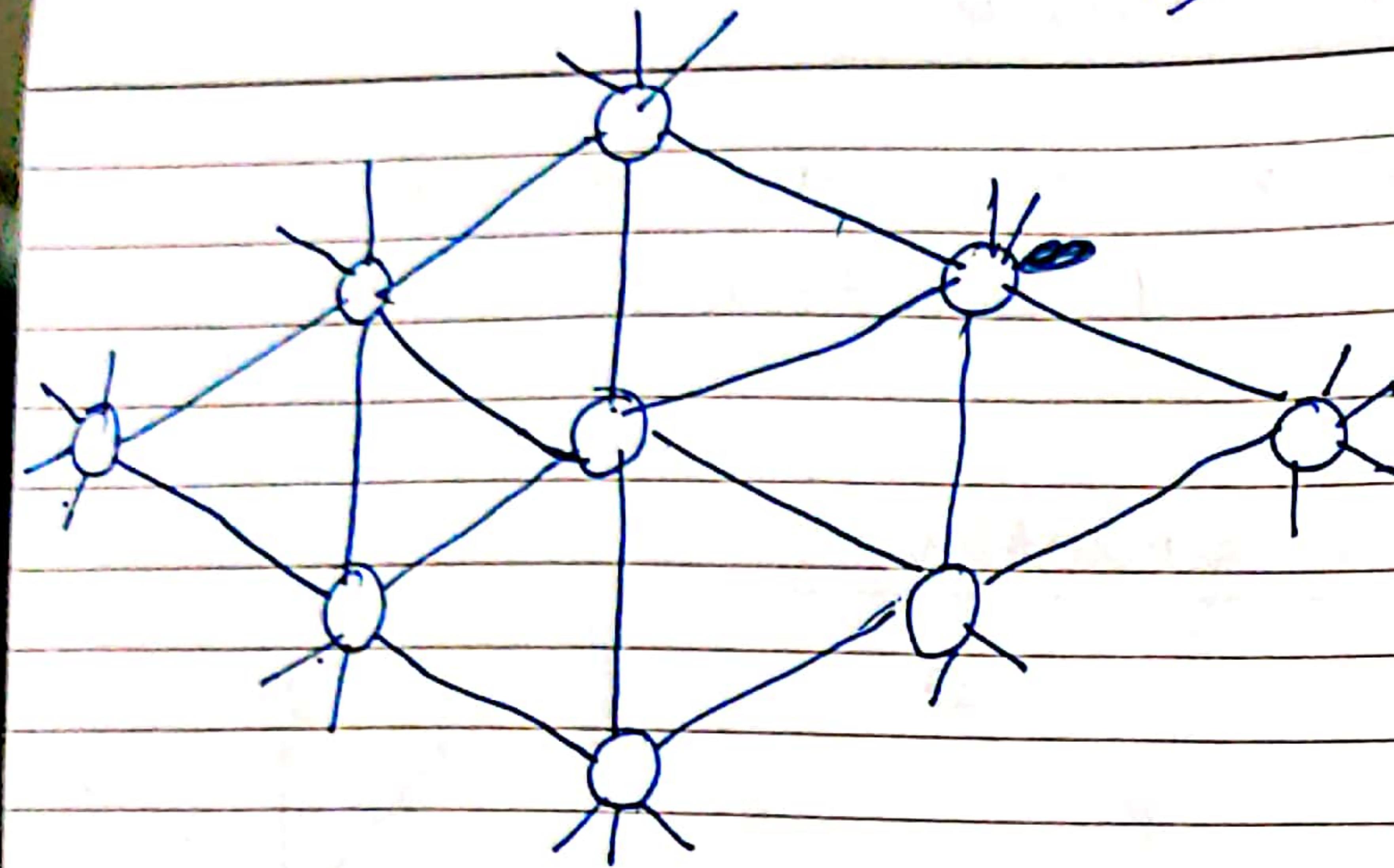
Star



Tree



~~Nearest neighbour~~
Mesh

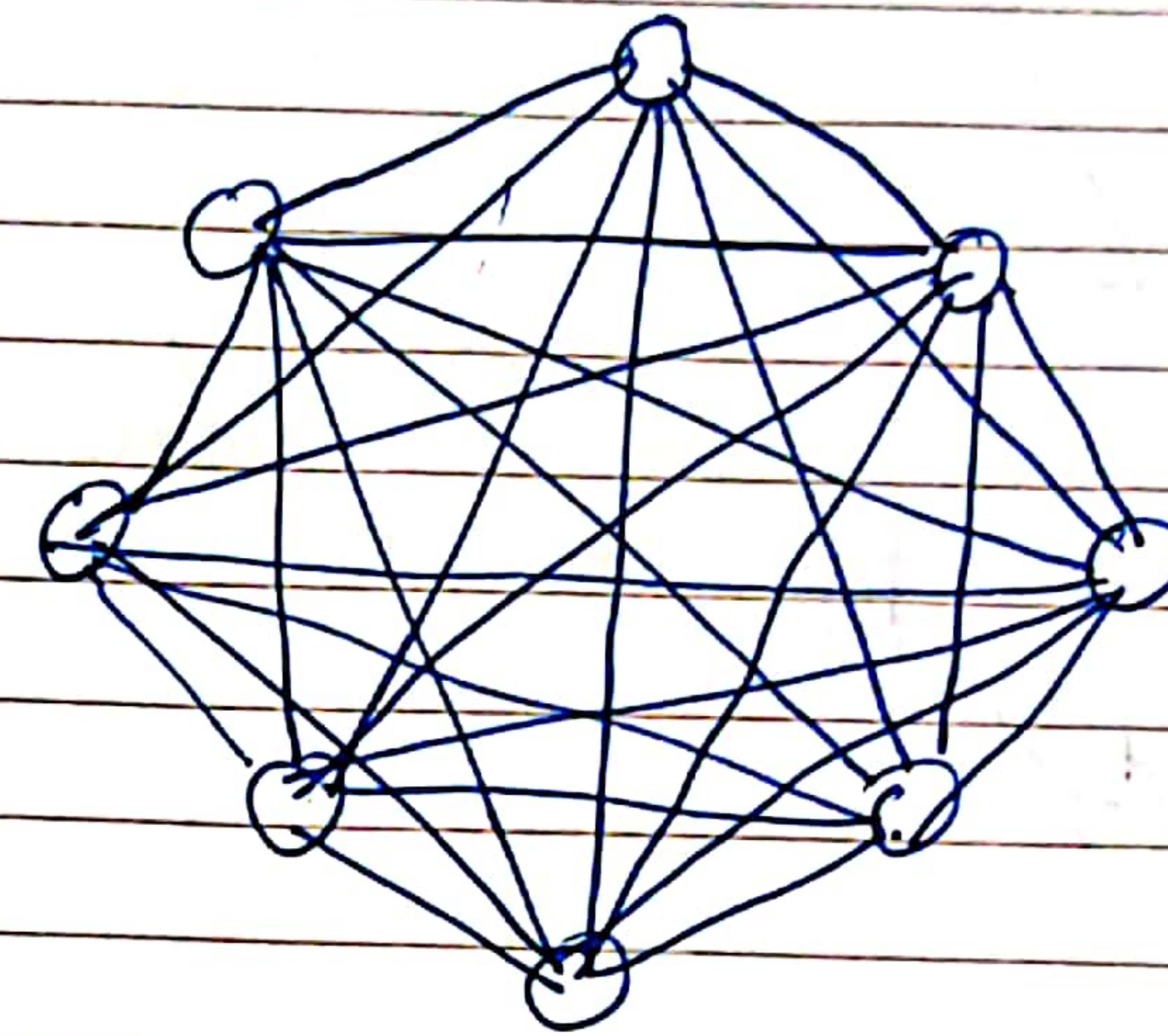


Systolic Array .

V-15

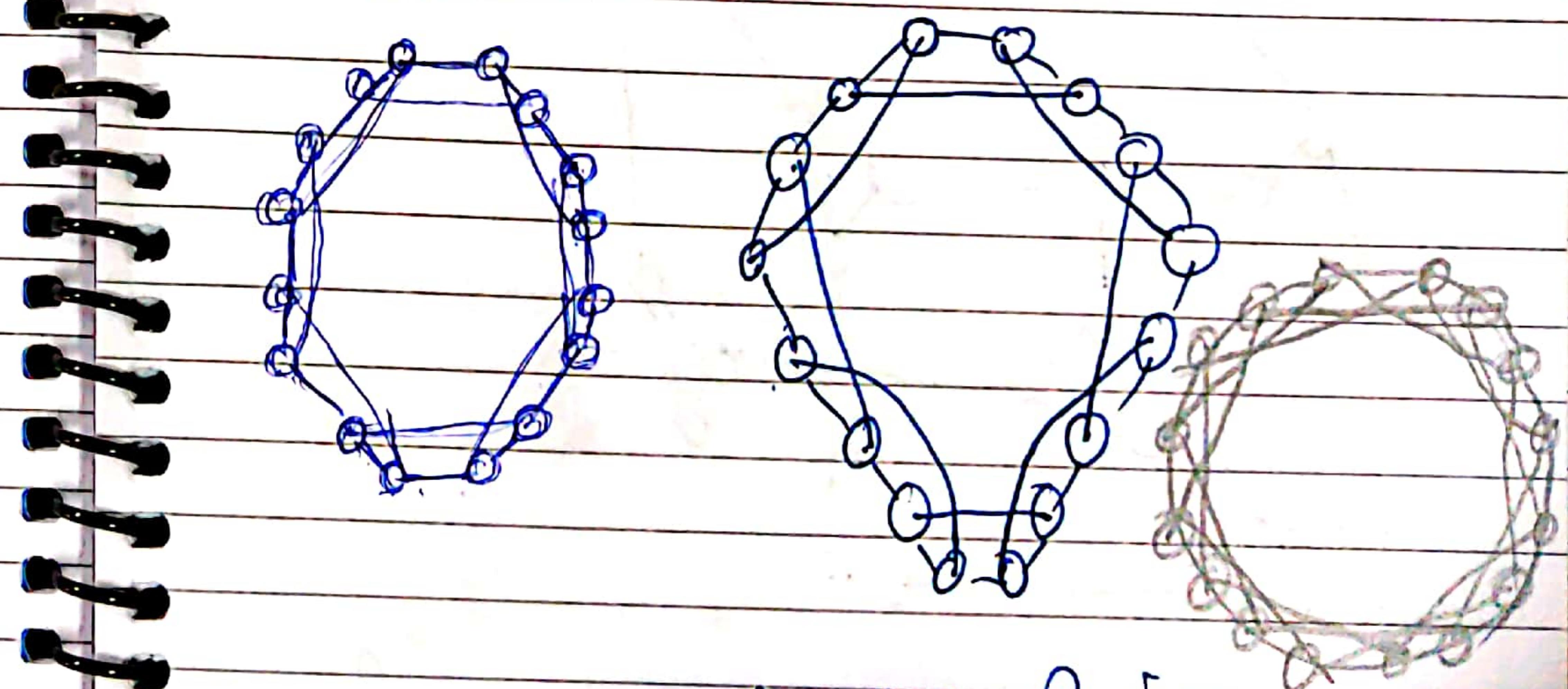
3-Dimensional

V-15

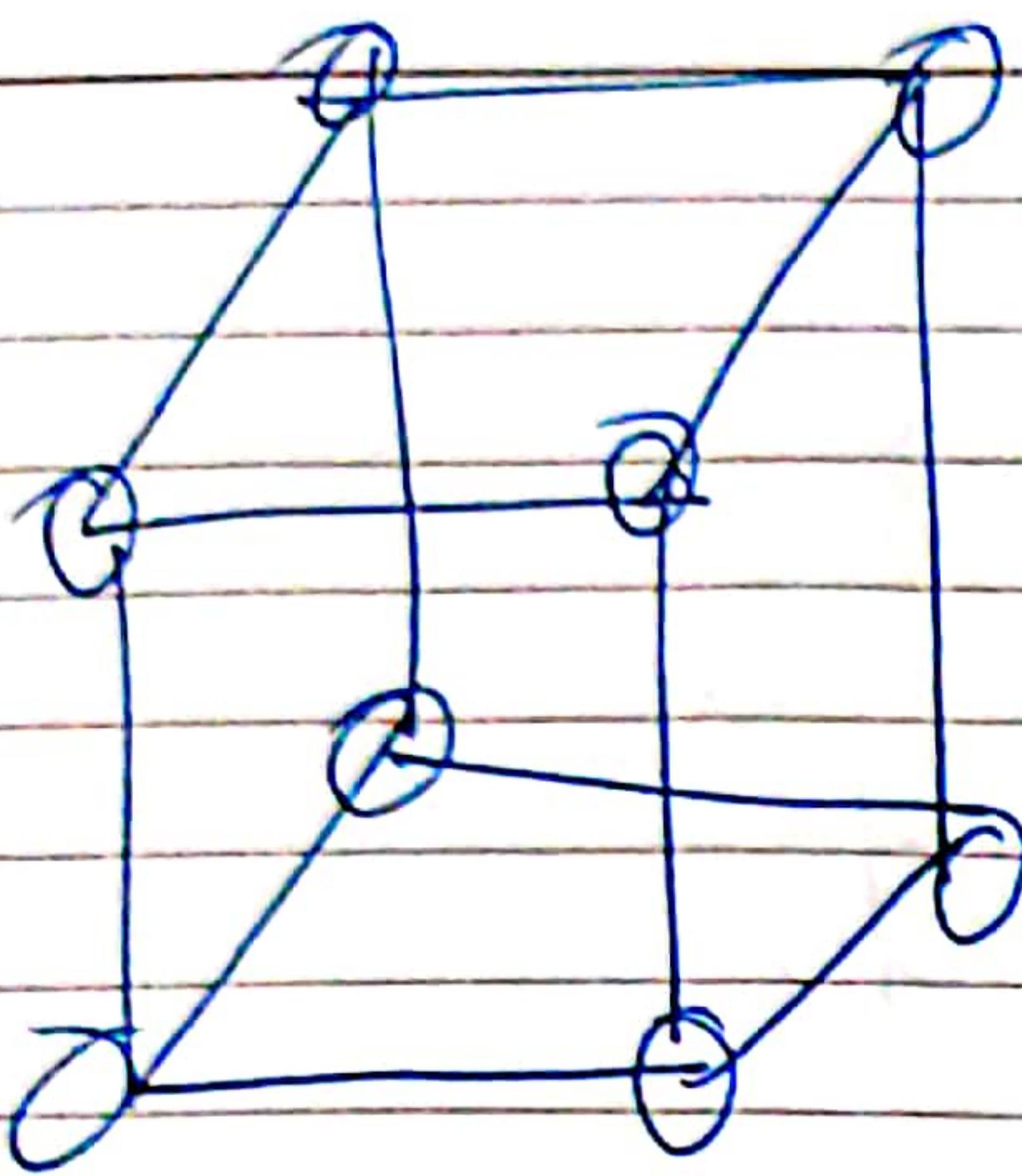


Completely Connected

16 nodes .

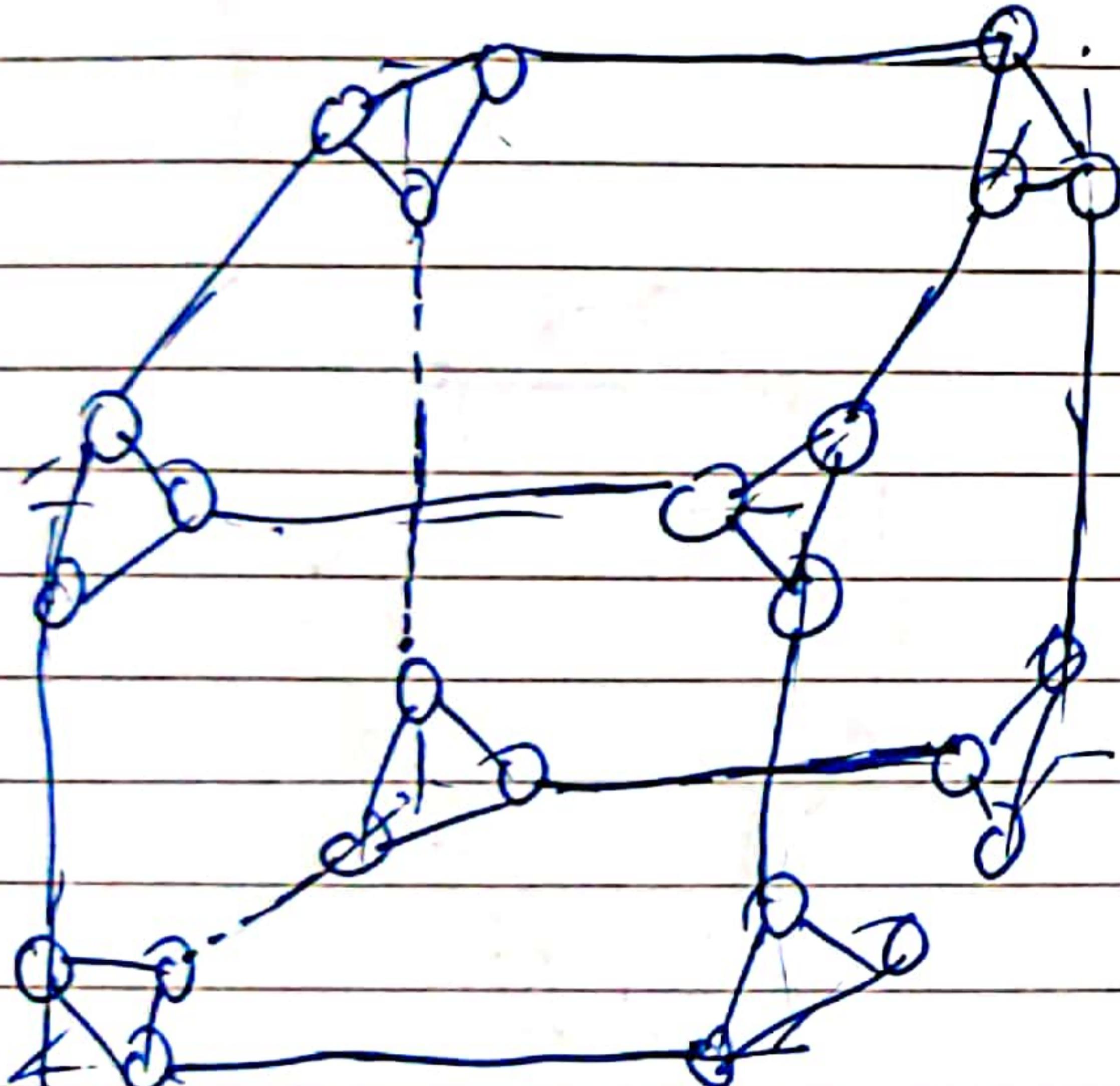


Chordal Ring



3 - Cube

L-15

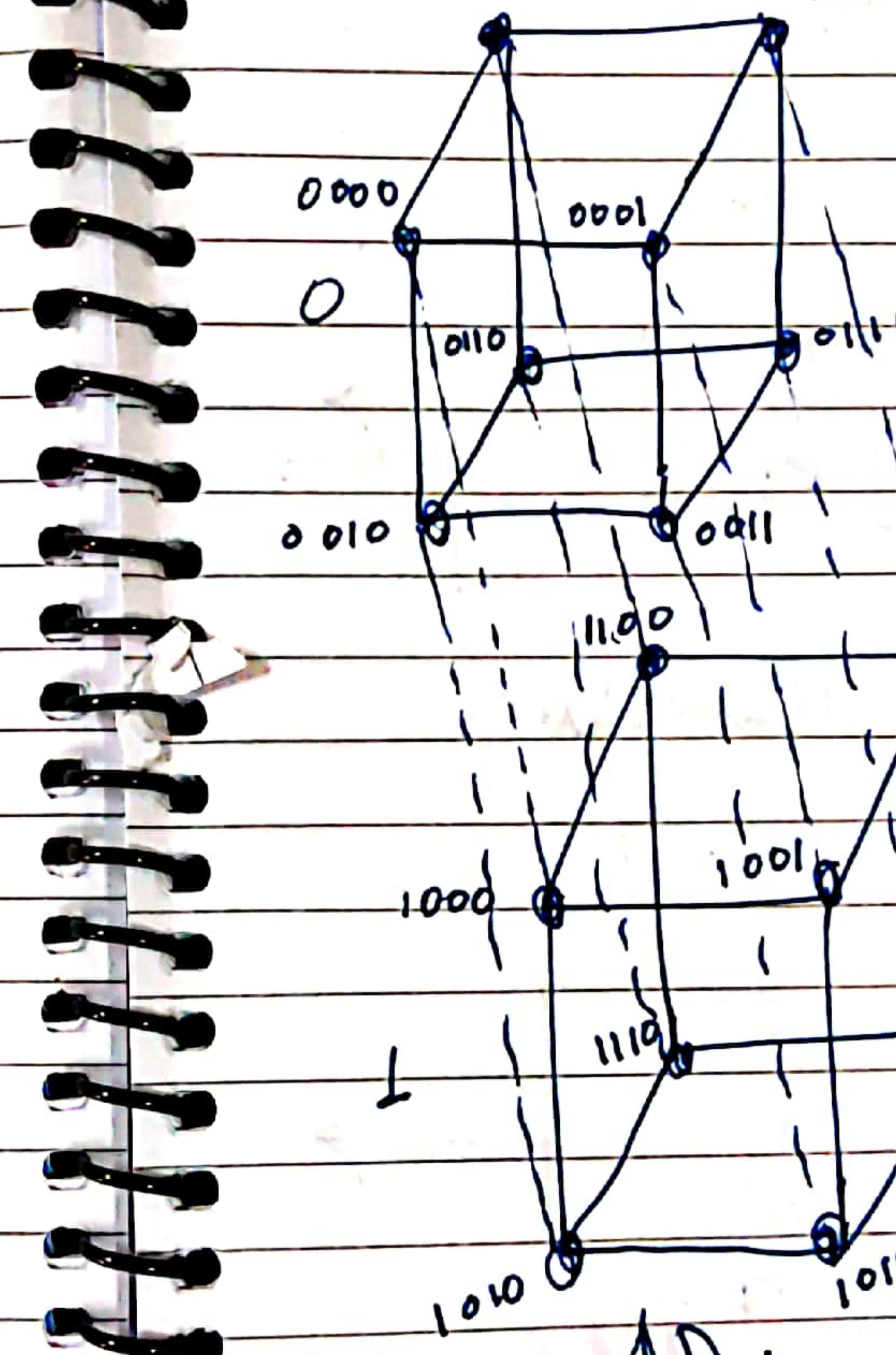
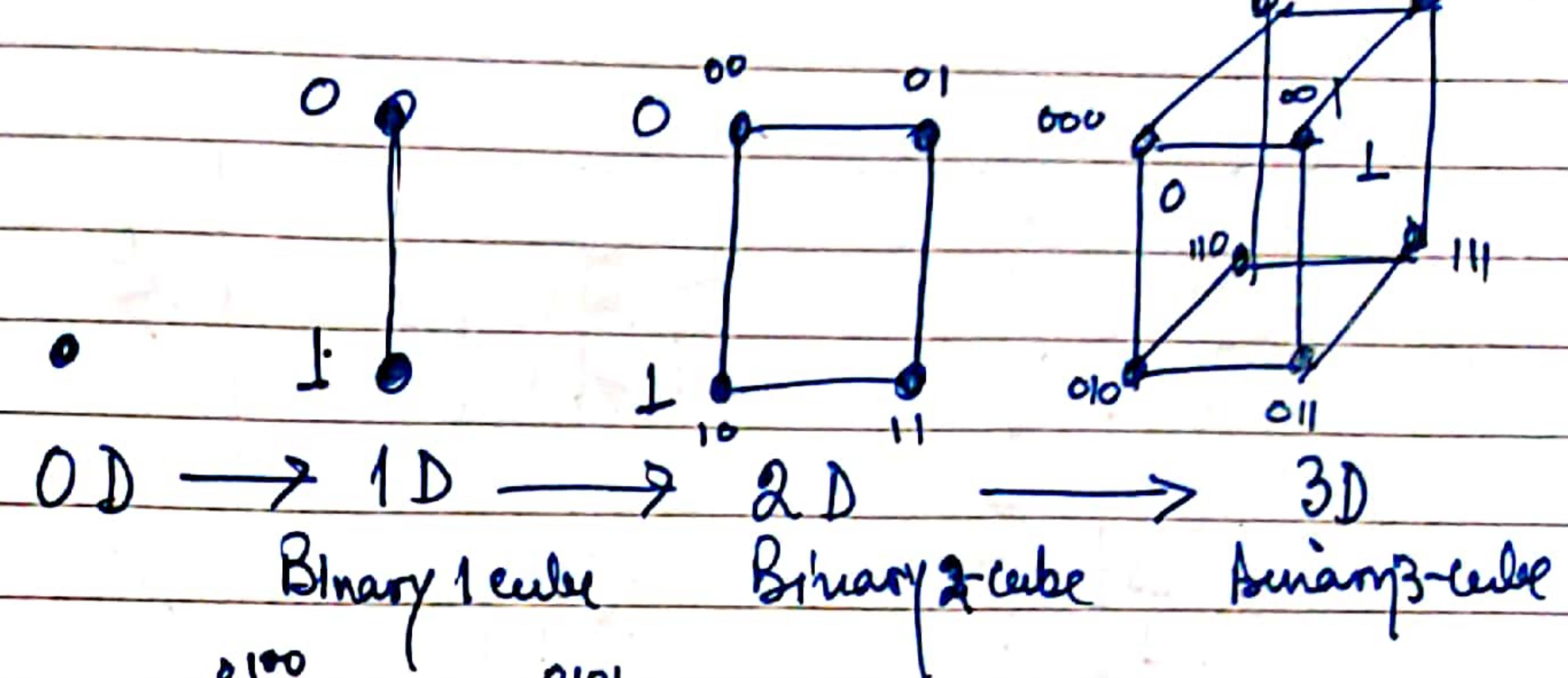


3 cube connected cycle

(a deviation from hypercube)
(obtained from the 3-cube)

Hypercube

L-15

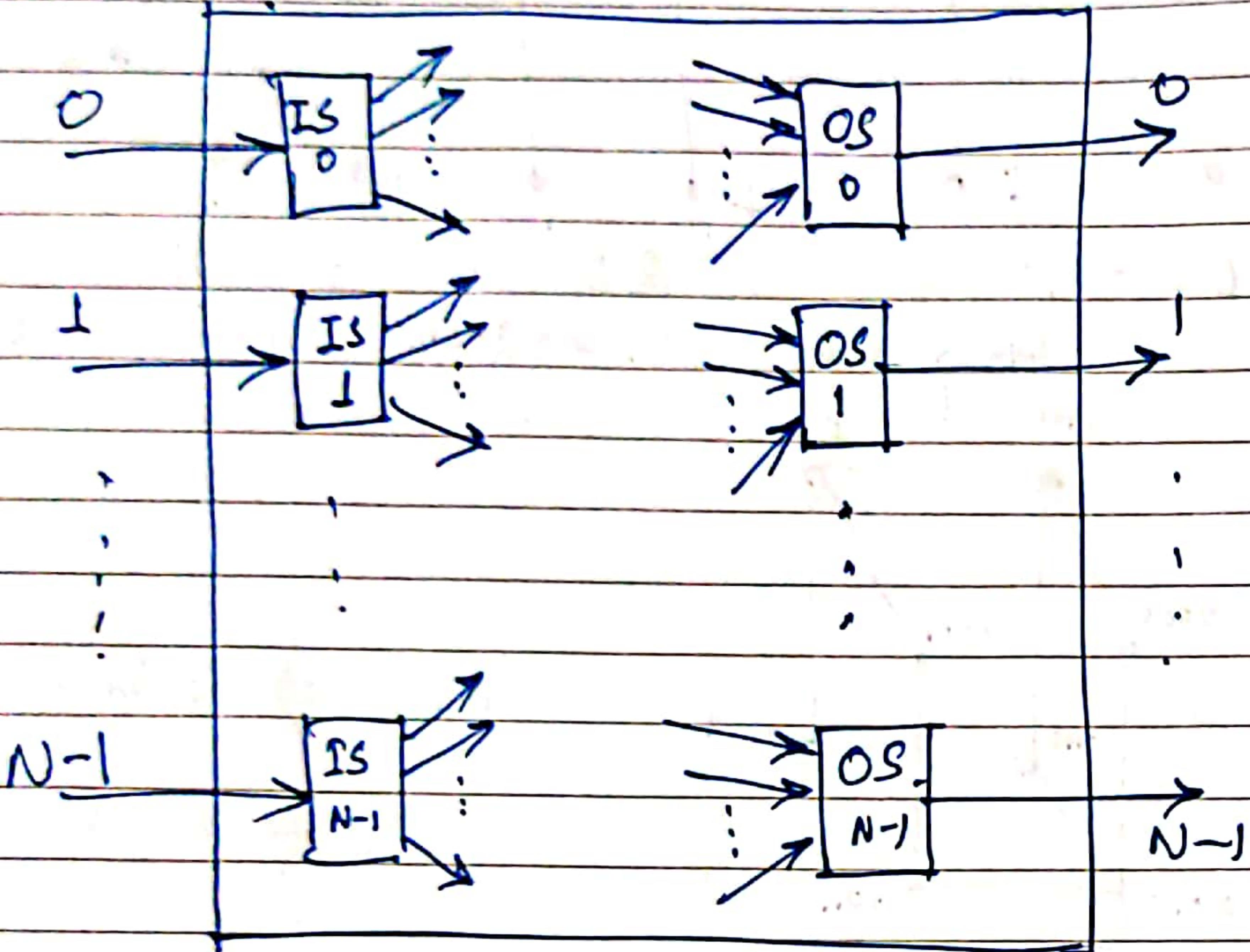


Mesh \Rightarrow 2D hypercube
3 cube \Rightarrow 3D hypercube

Recursive
Structure
of
binary
hypercube.

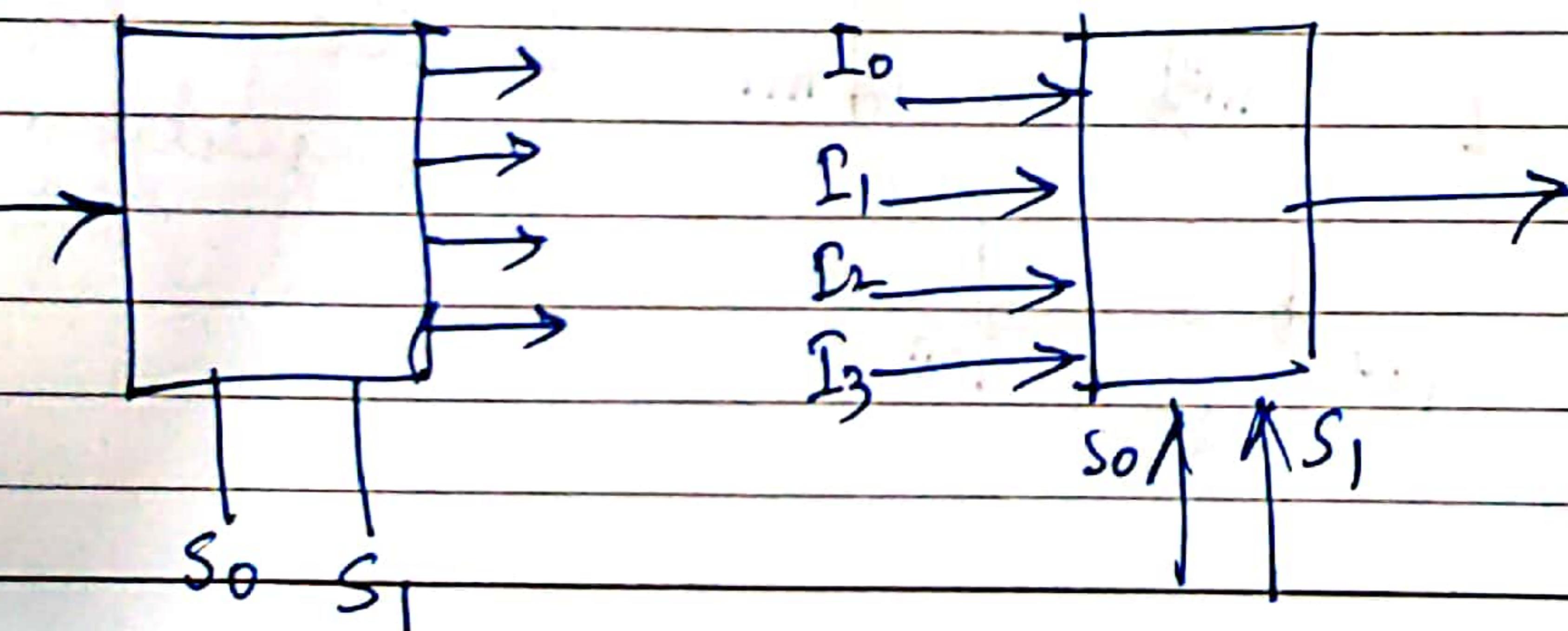
AD

Single Stage Dynamic Network



Demultiplexer

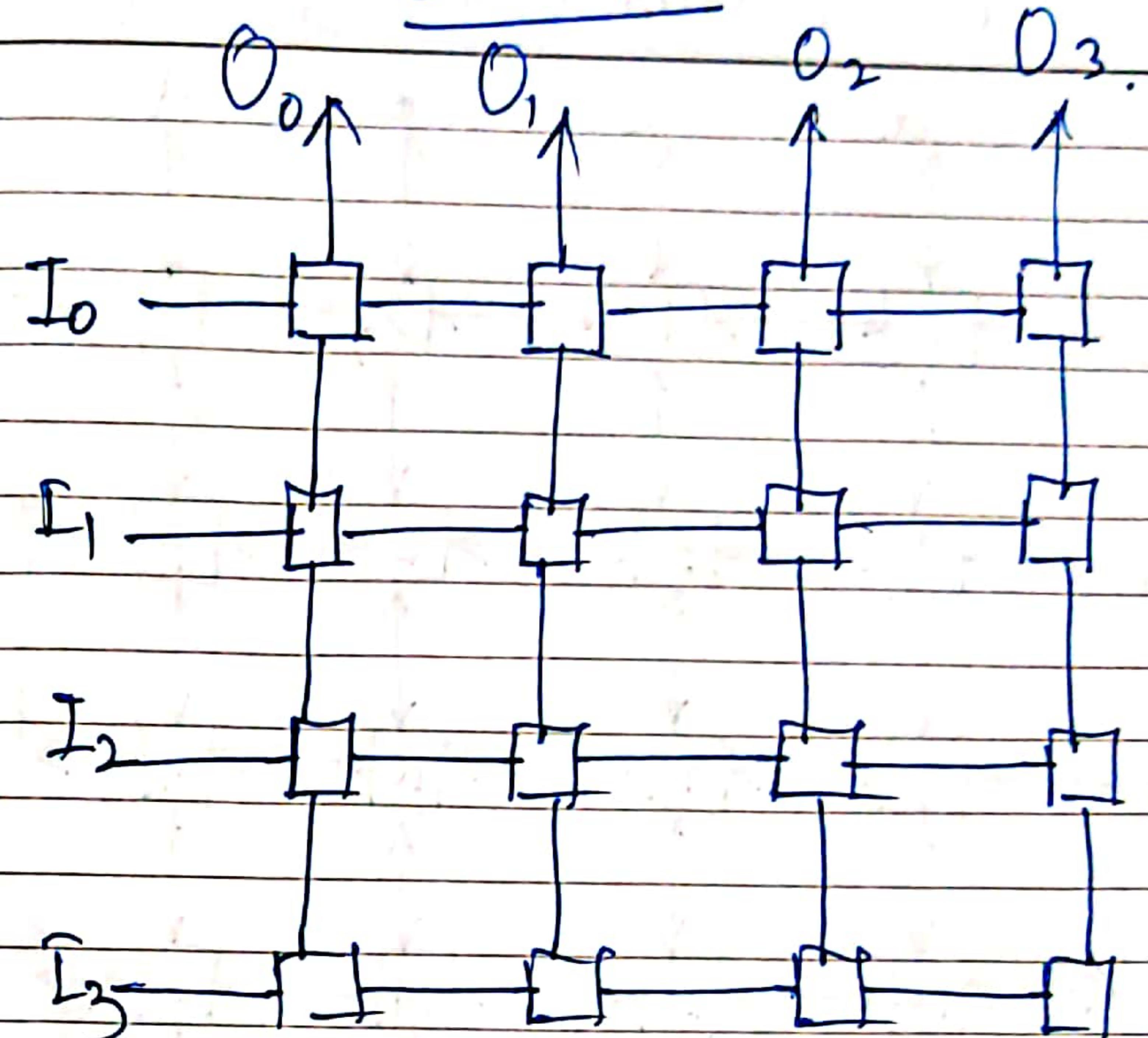
$1 - D$



Multiplexer

$M - 1$

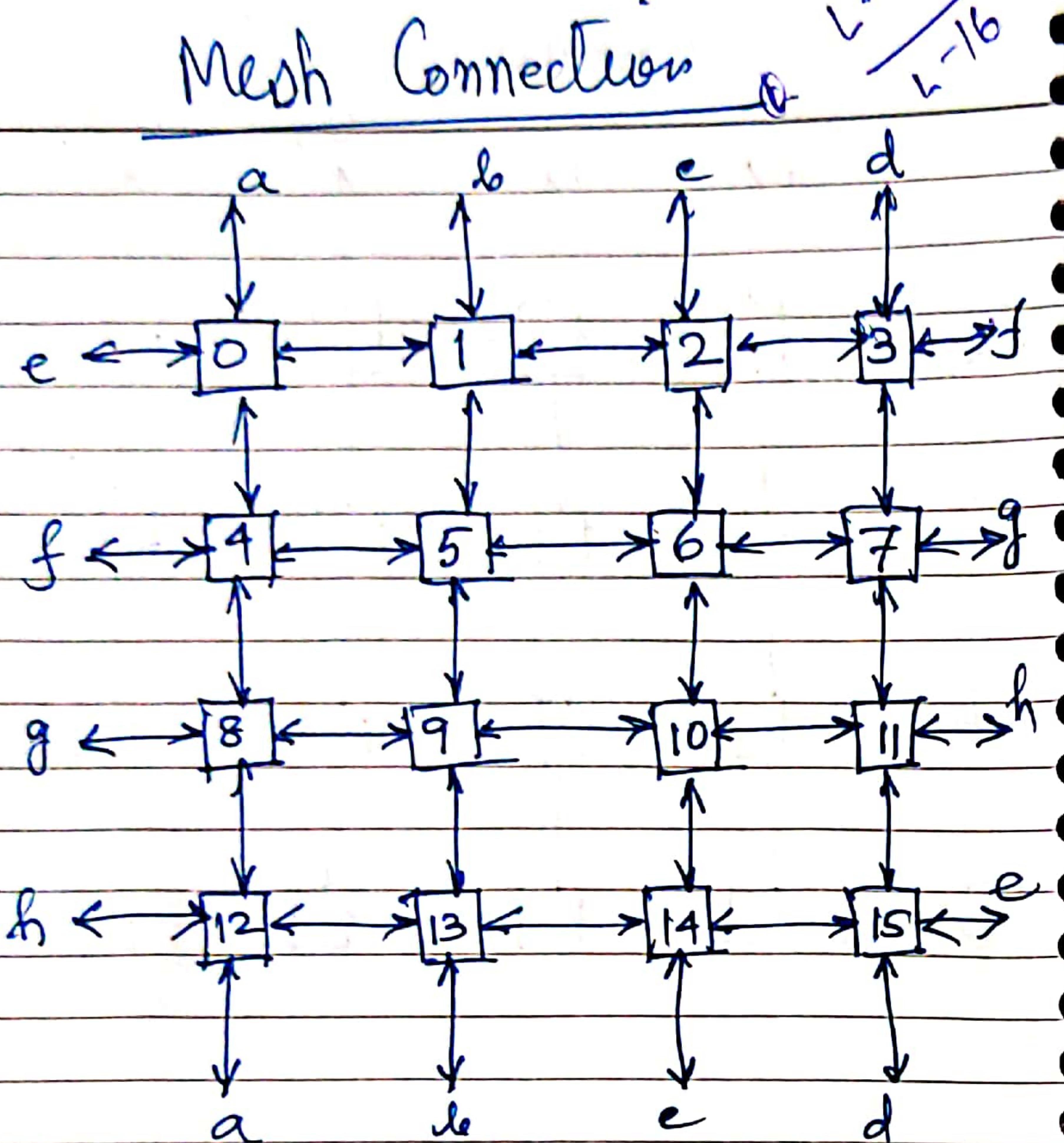
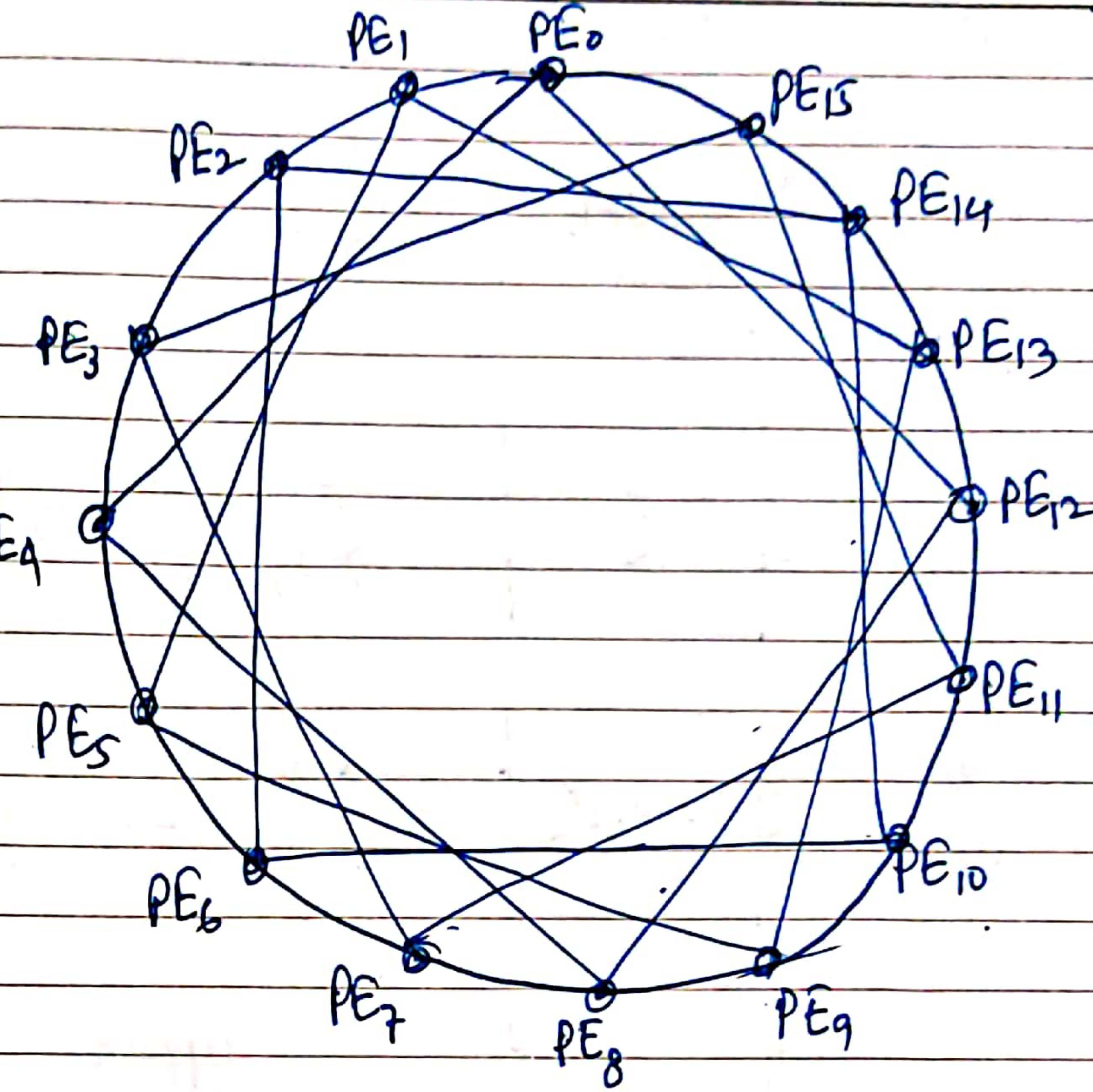
Crossbar



Partially Connected Network

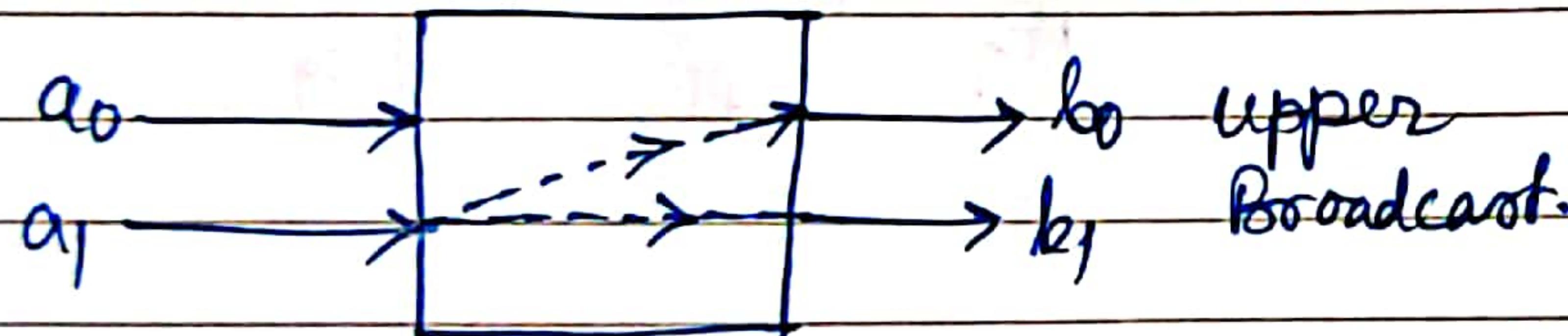
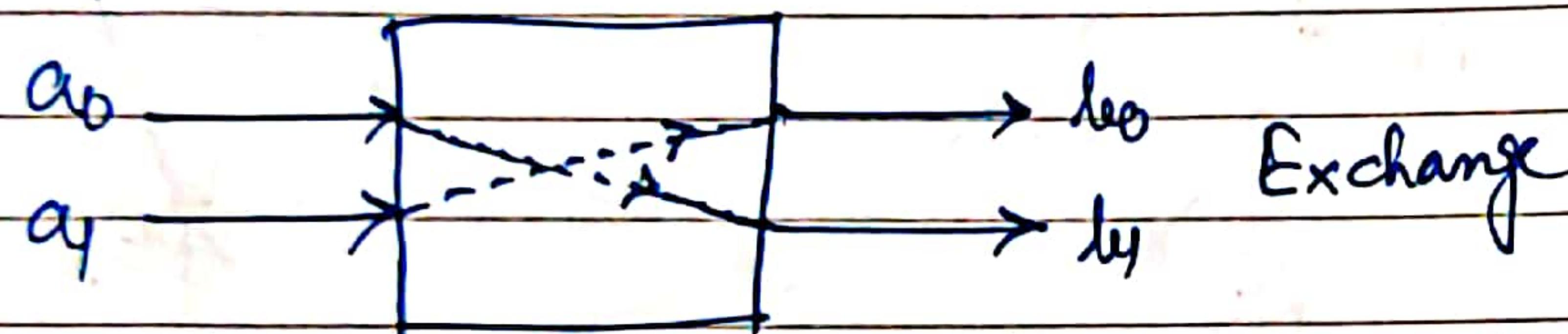
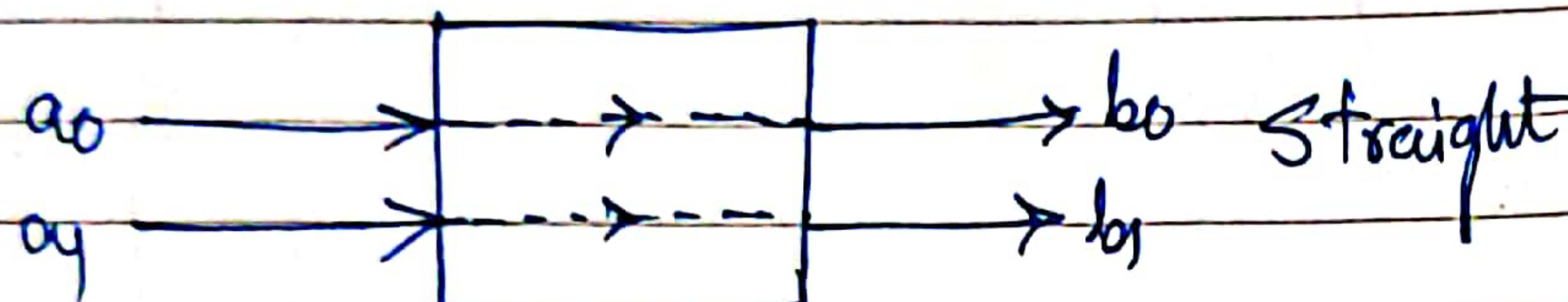
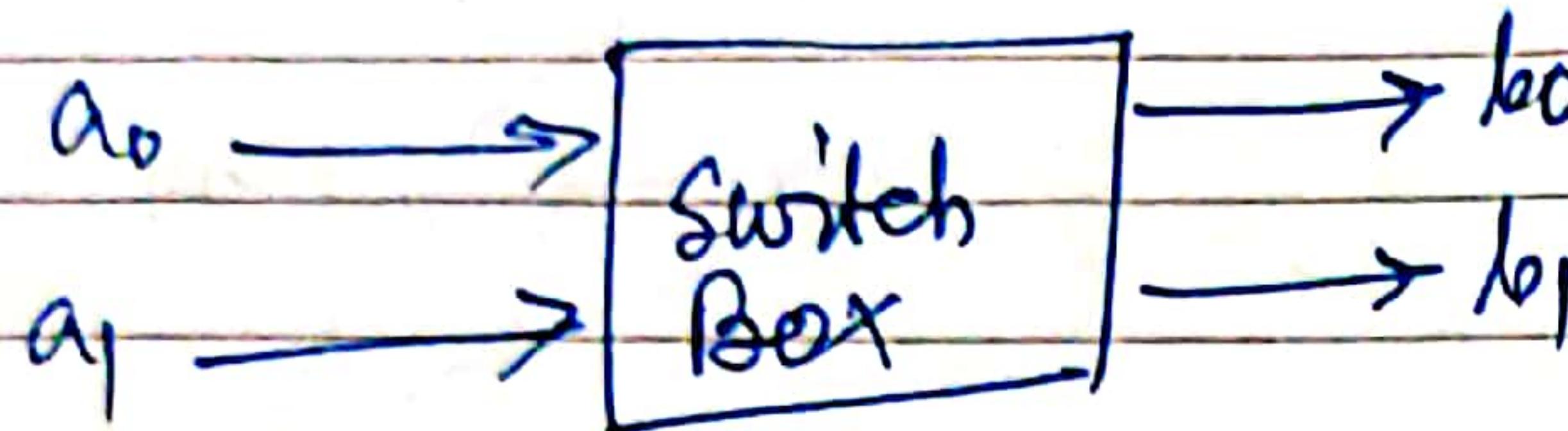
The mesh redrawn

~~v-15
v-16~~

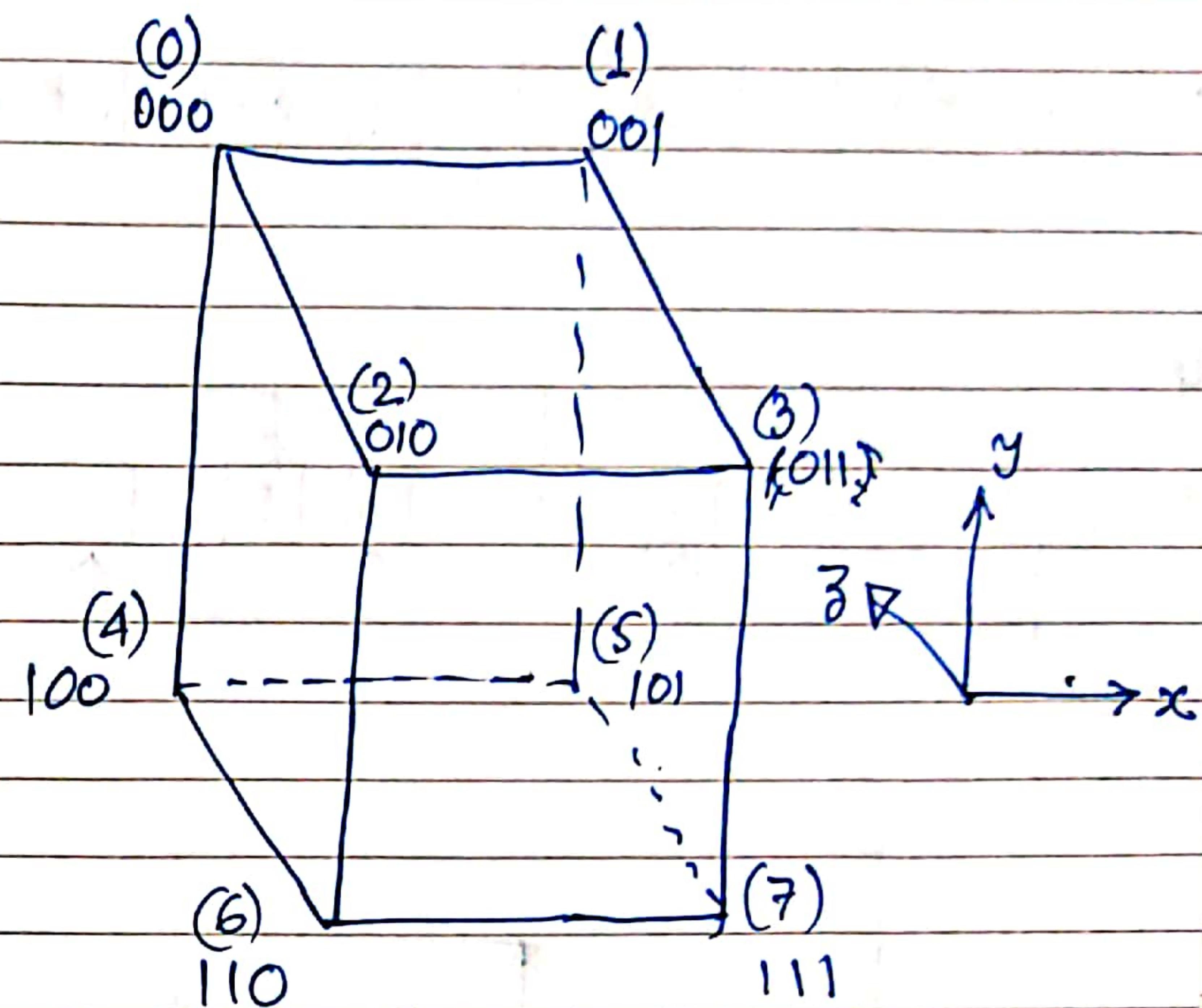


Illiac Network with $N=16$ PEs

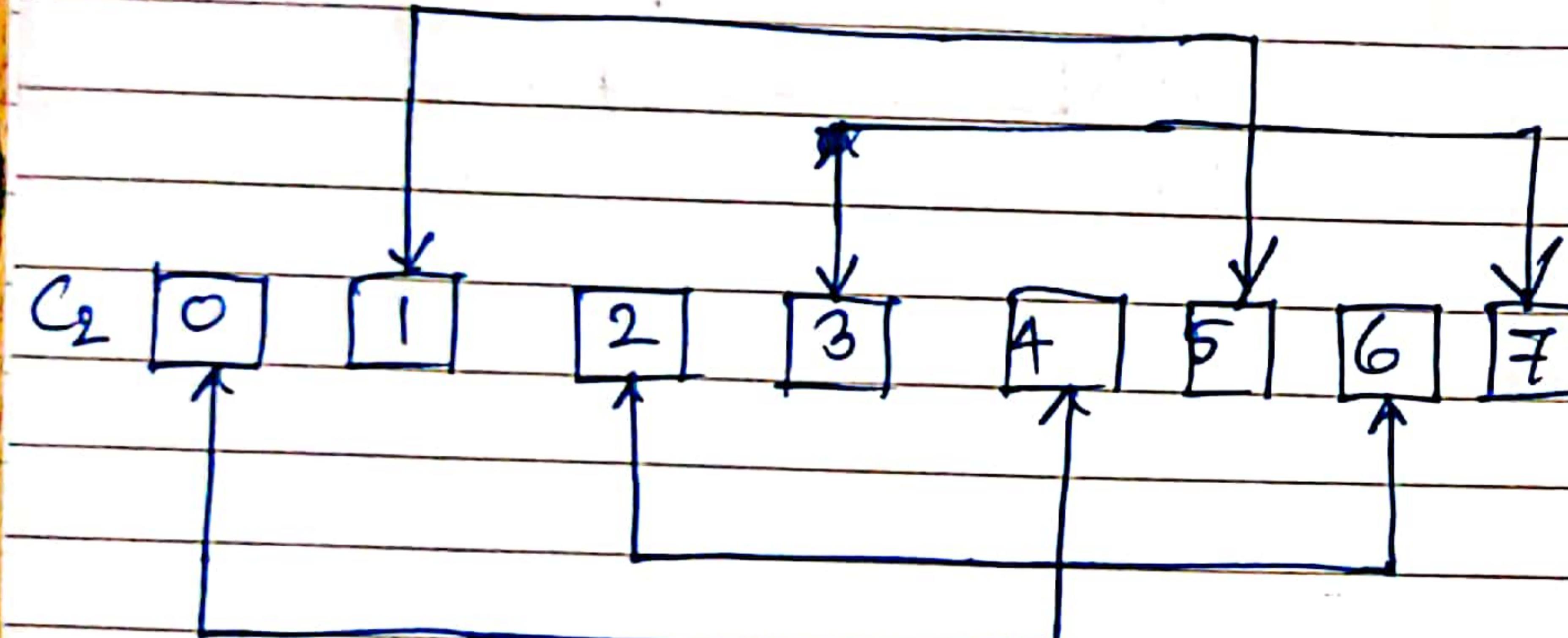
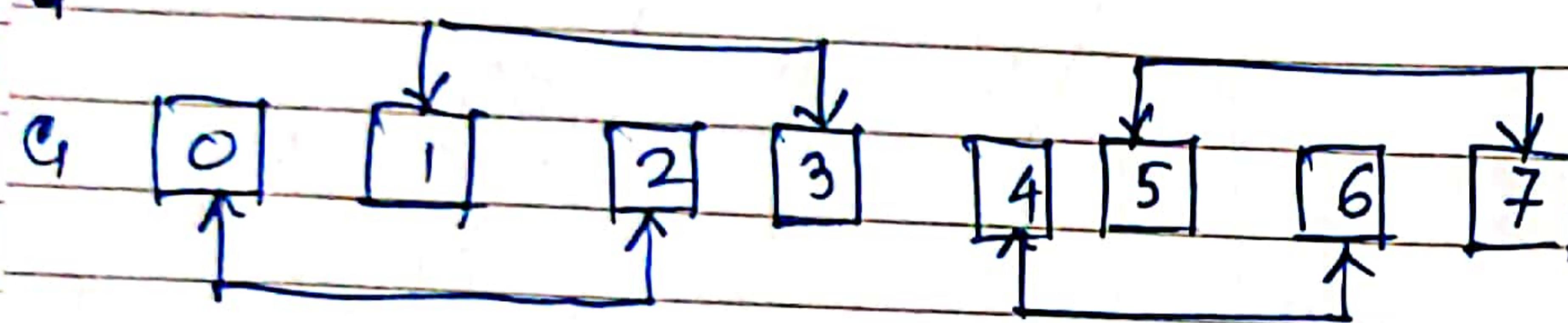
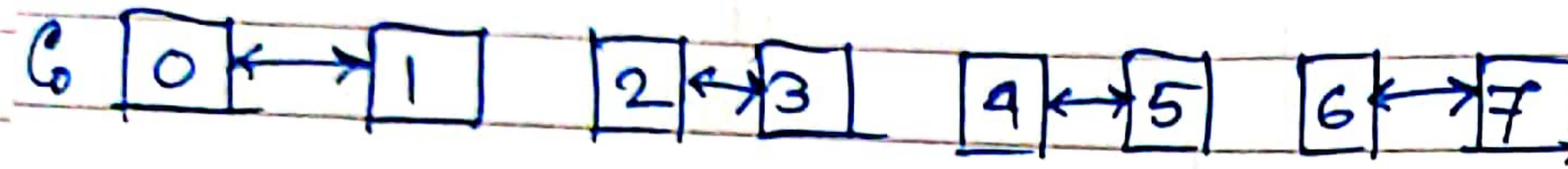
A 2x2 switching box and its 4 interconnection states



A 3-cube of 8 nodes

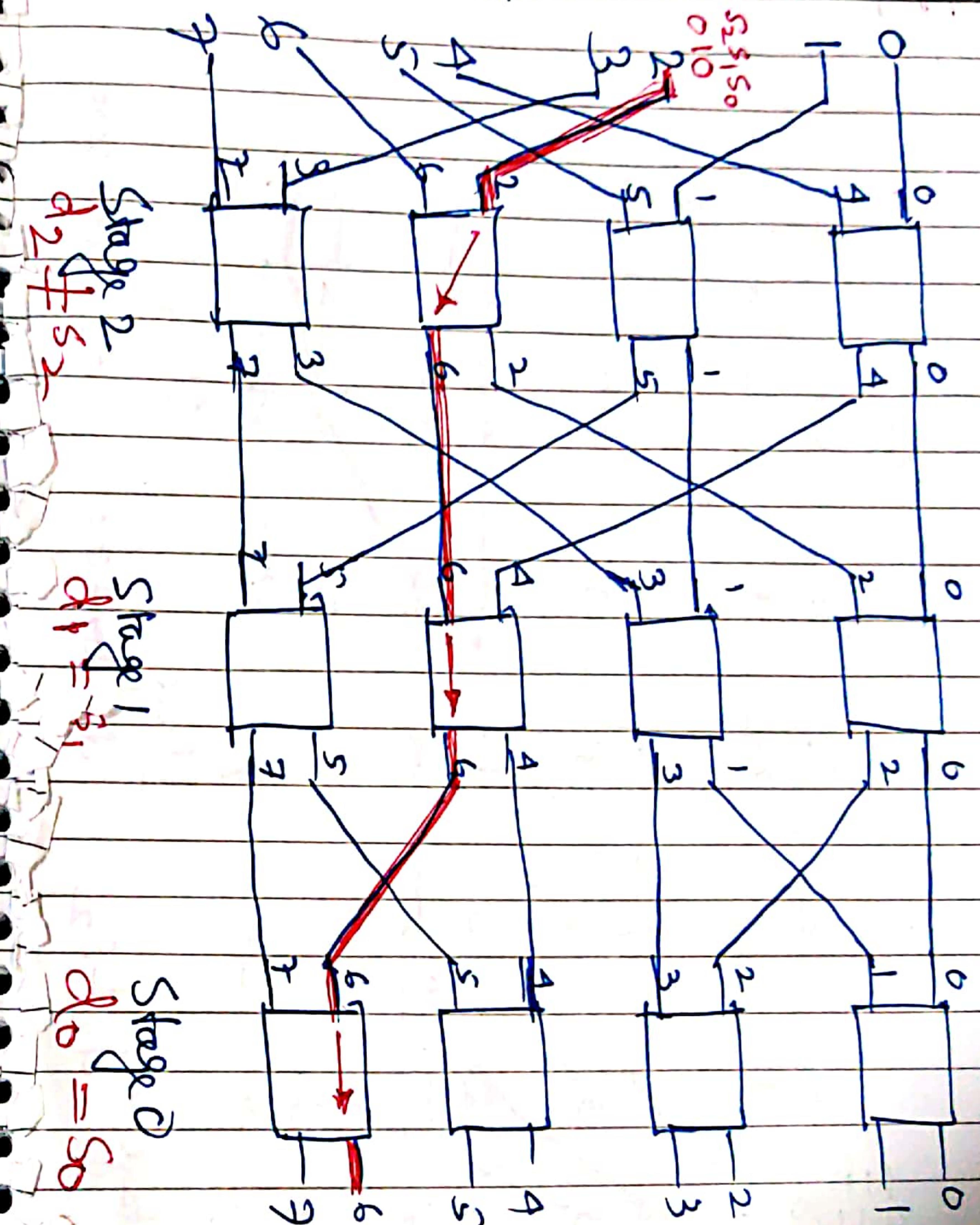


The recirculating Cyclic Network



$\checkmark \rightarrow b$
Network

A multistage Cyclic network for $N=8$



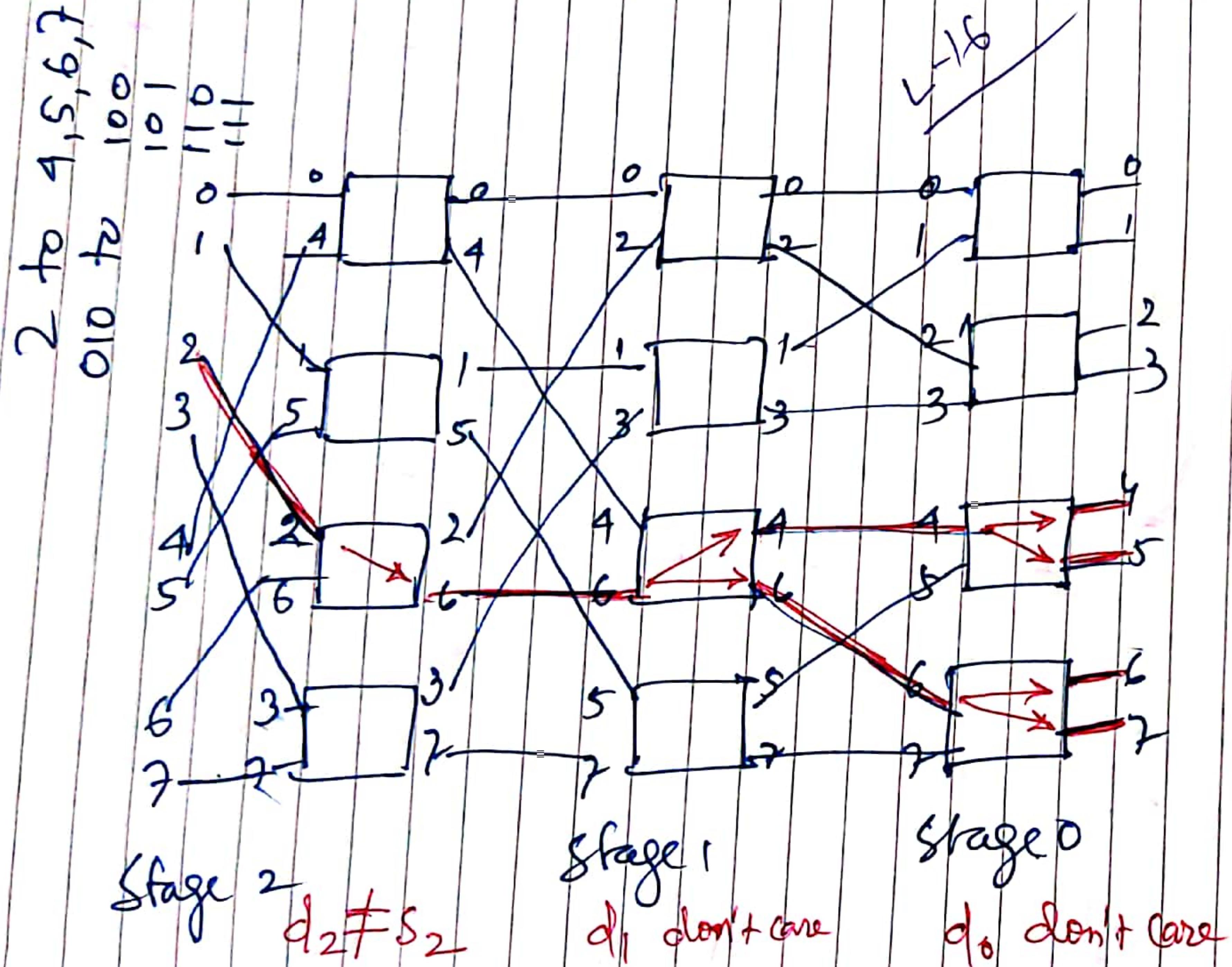
Stage 2
 $\frac{2}{2} \frac{4}{5} \frac{6}{2}$

Stage 1
 $\frac{0}{0} \frac{1}{1} \frac{2}{2} \frac{3}{3} \frac{4}{4} \frac{5}{5} \frac{6}{6} \frac{7}{7}$

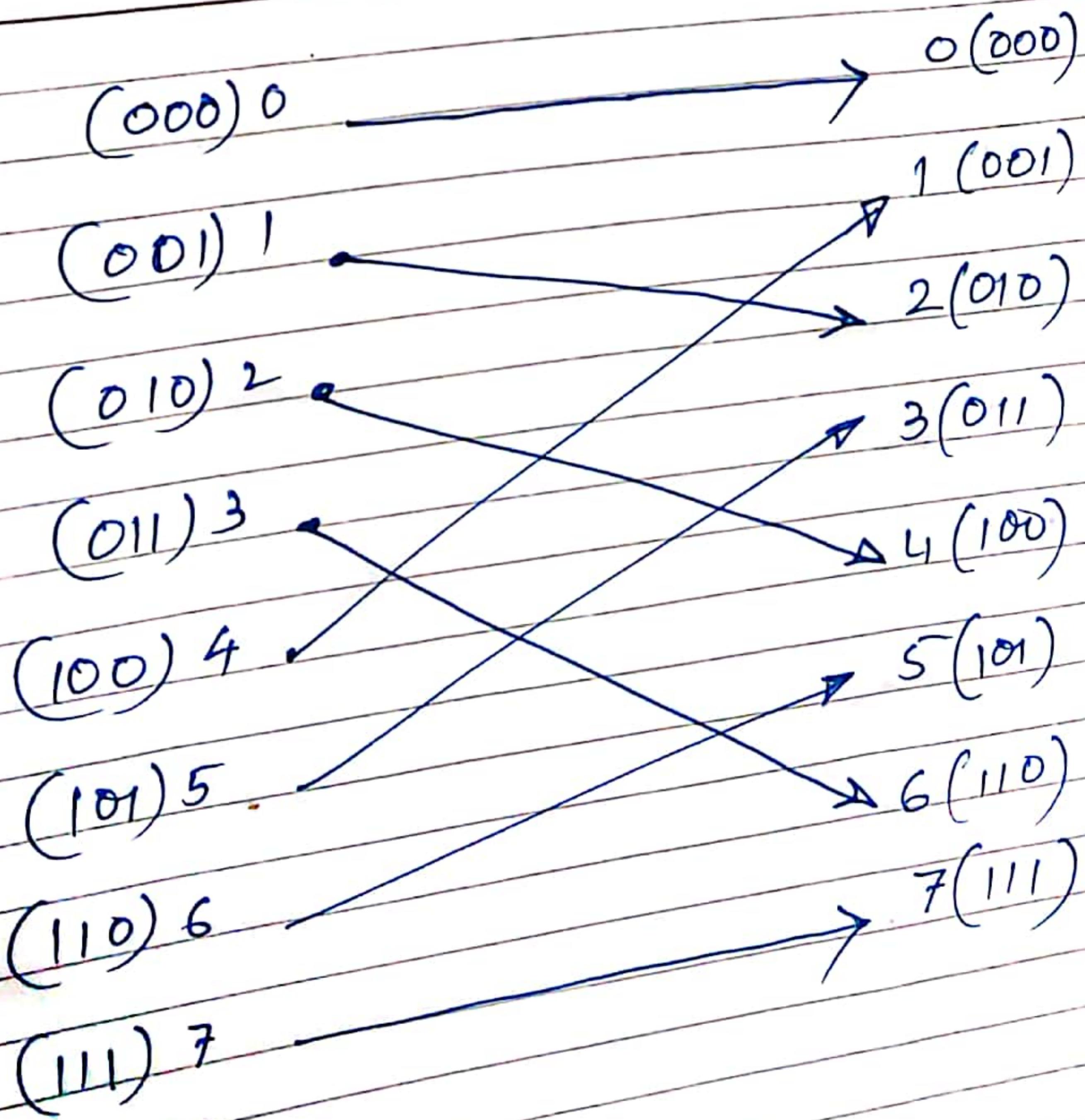
Stage 0
 $\frac{0}{0} \frac{1}{1} \frac{2}{2} \frac{3}{3} \frac{4}{4} \frac{5}{5} \frac{6}{6} \frac{7}{7}$

6 2 2 to 0
1 1 0
0 0 1
0 0 0

Broadcasting day 9 multi stage value.



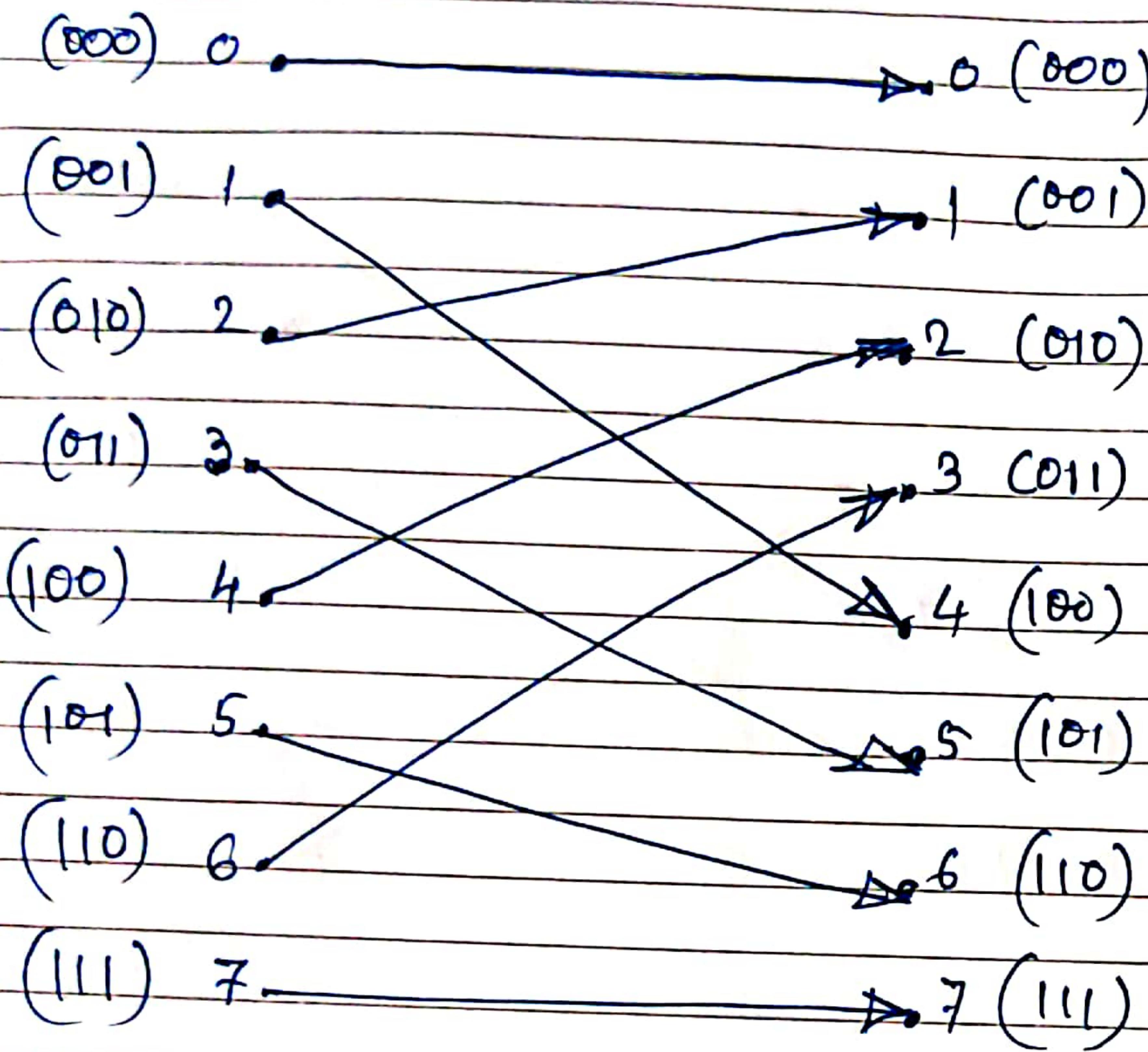
Perfect Shuffle



L < 17

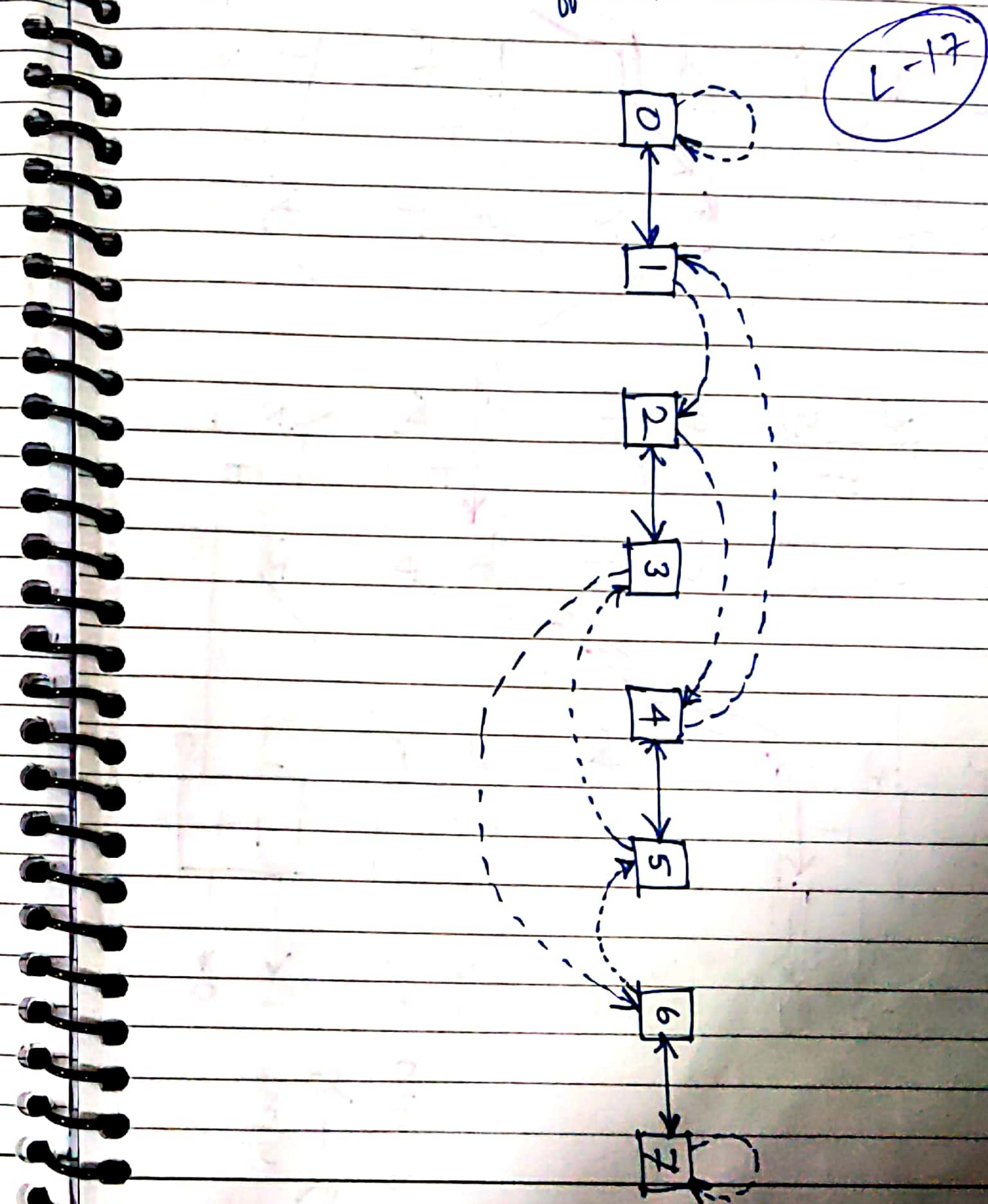
Inverse Perfect Shuffle

V-17
V-18

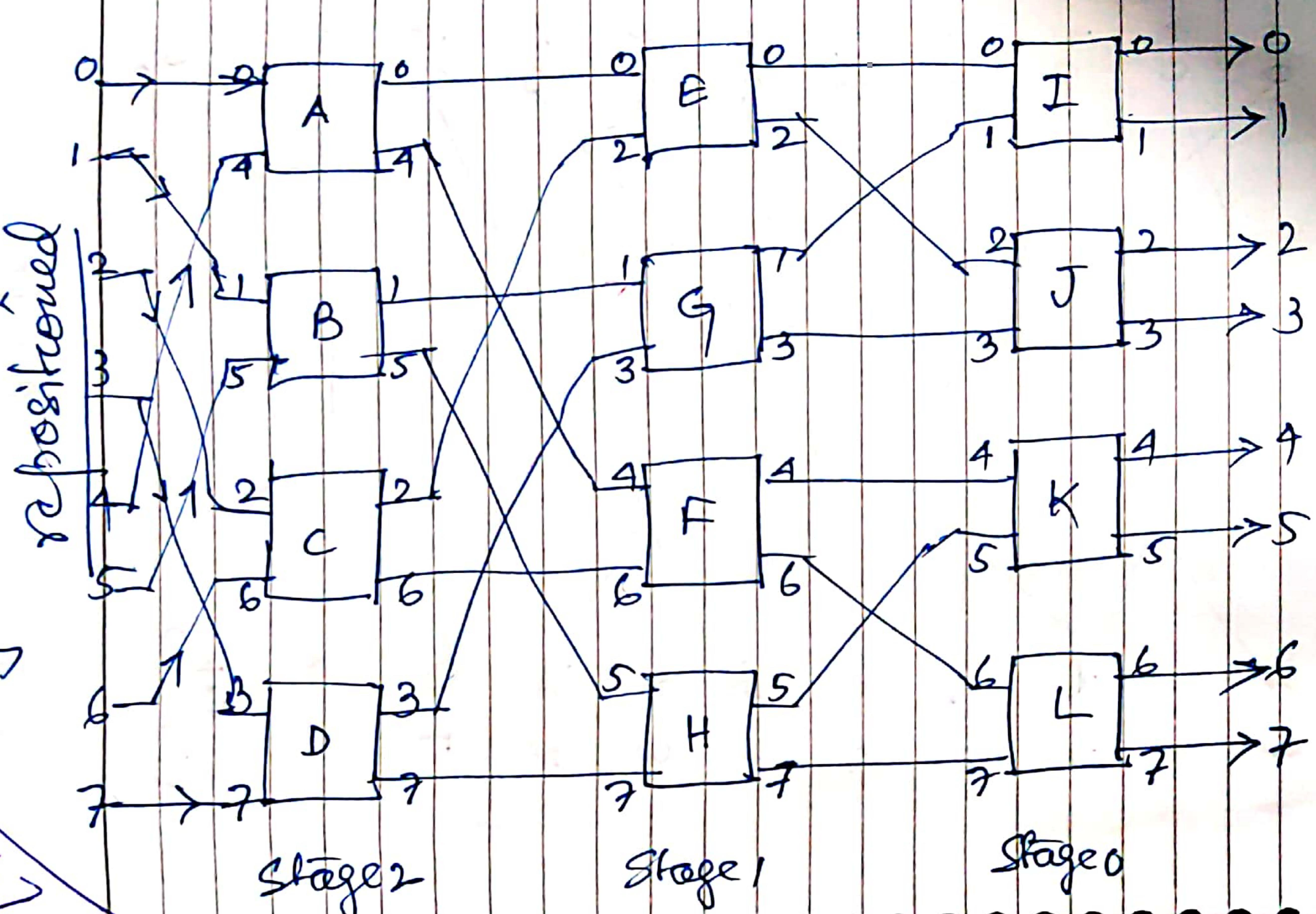


Single-stage Recirculating Shuffle-exchange network

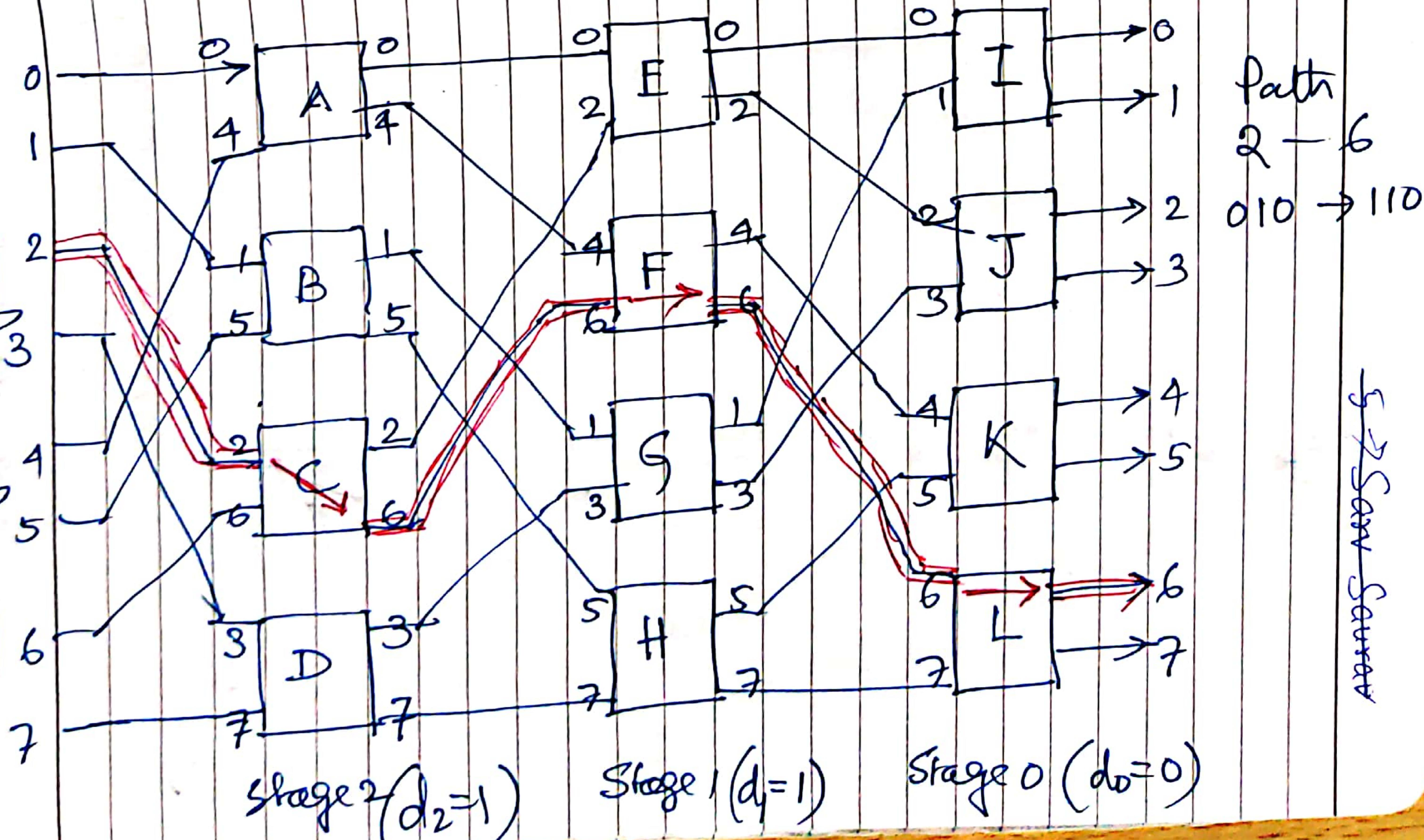
(Solid lines: Exchange)
(Dashed lines: Shuffle)



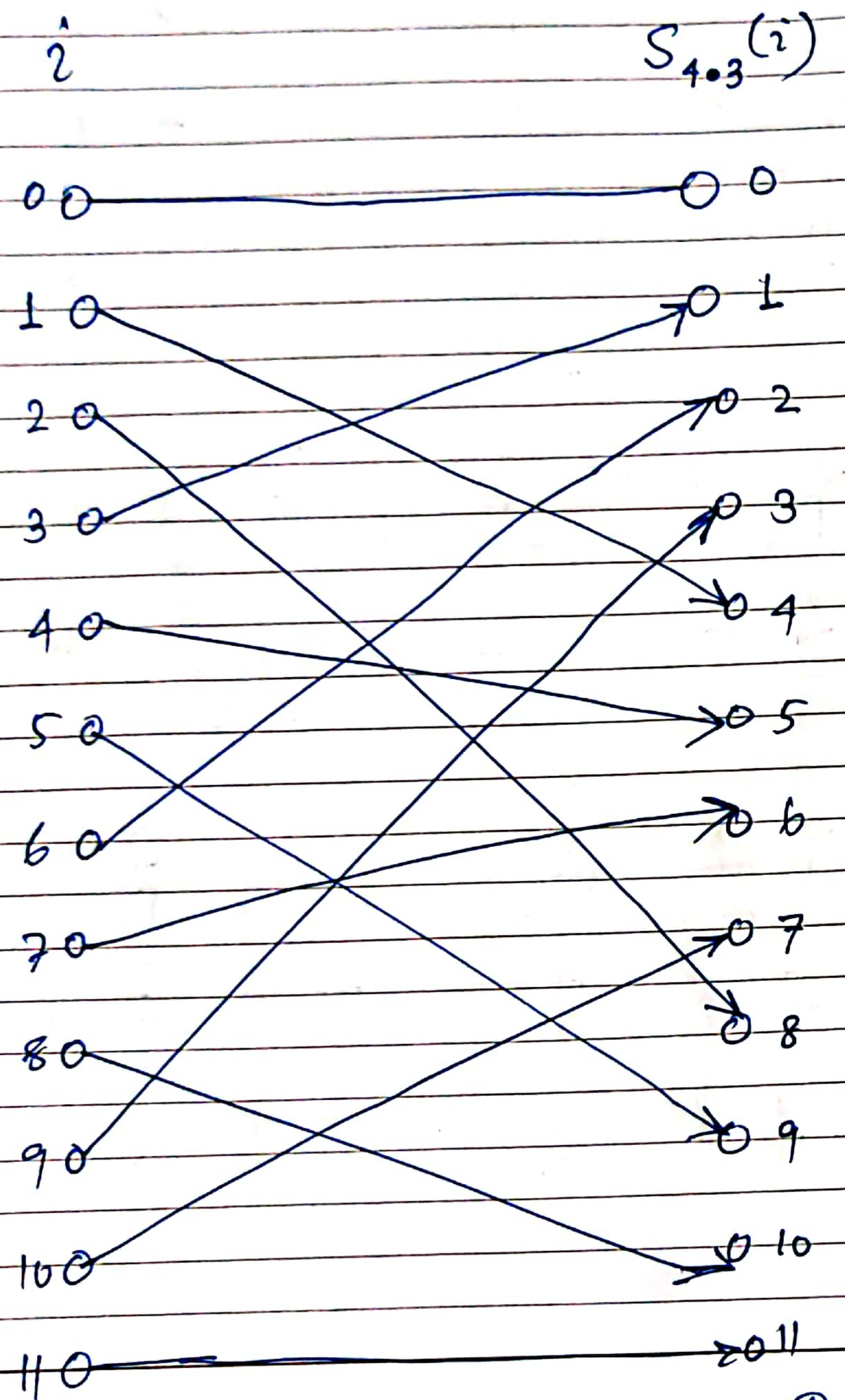
Omega Network with Switch box



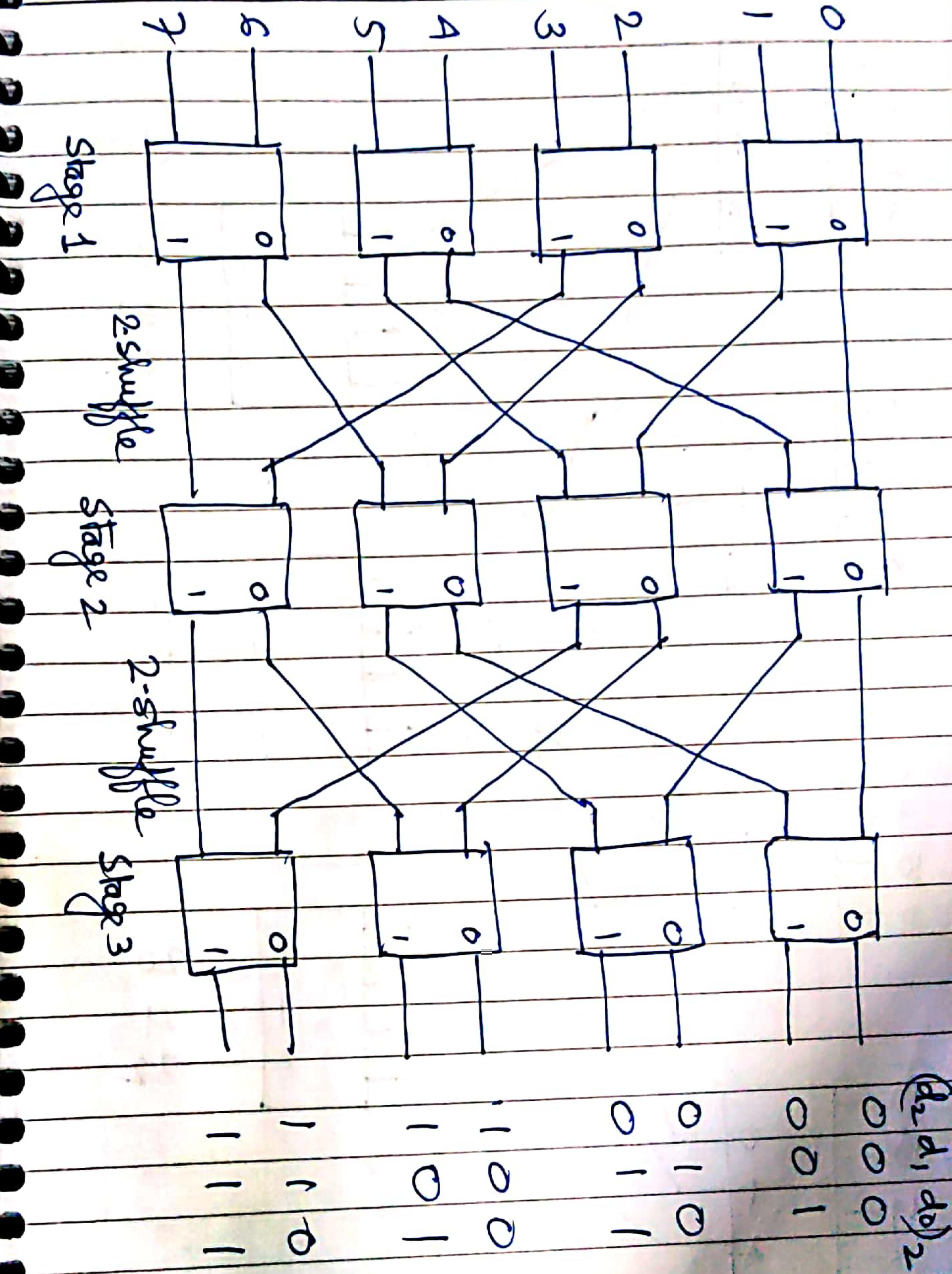
Multistage Omega Network



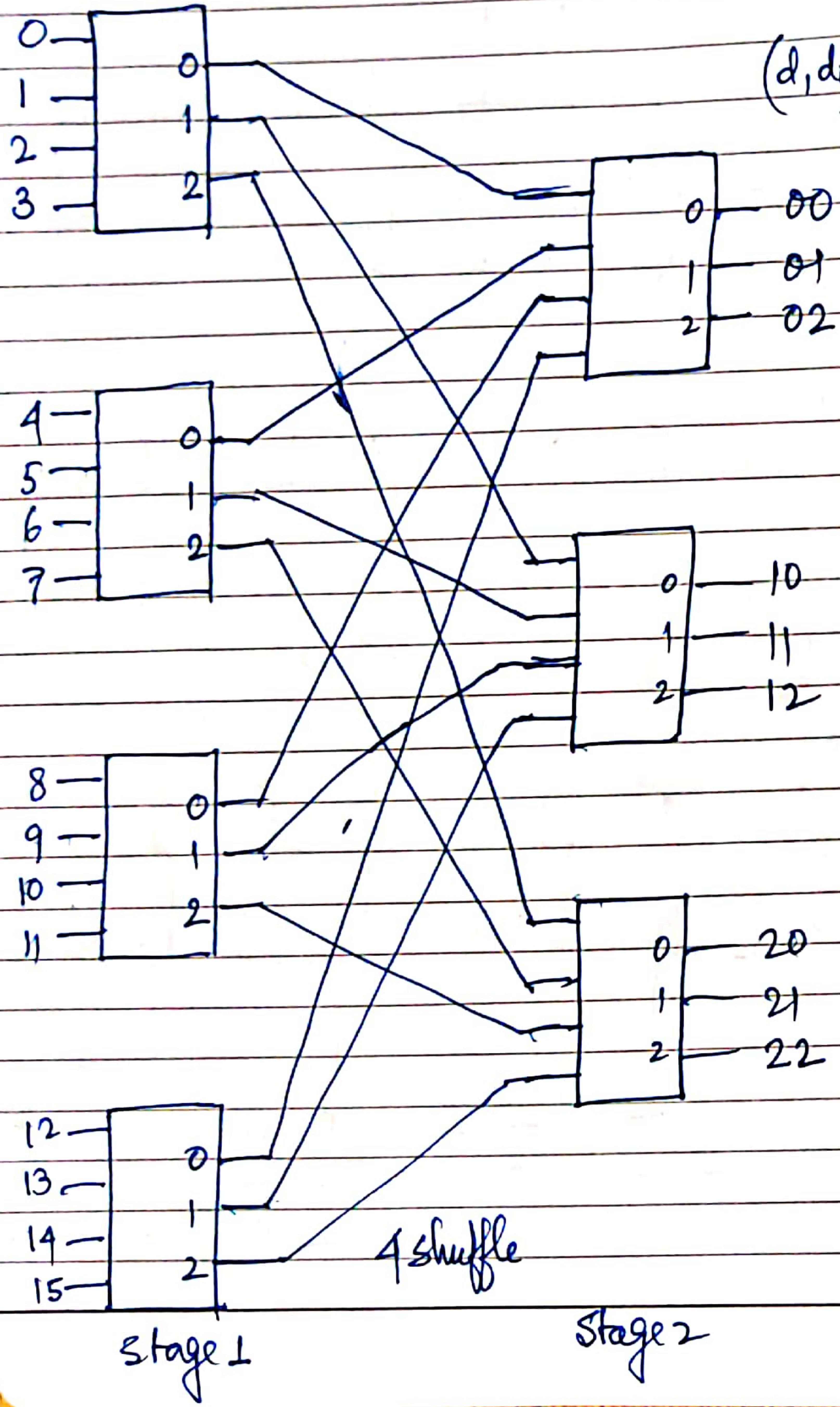
A shuffle of 12 objects



$2^3 \times 2^3$ Delta Network



$4^2 \times 3^2$ Delta Network



$a^n \times b^m$ Delta Network

