

$$C_{ij} \neq C_{ji}$$

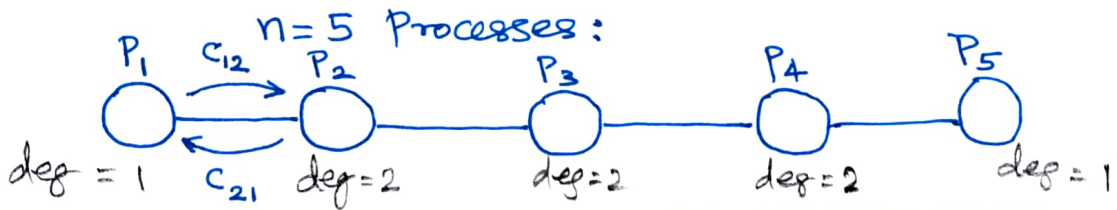
Odd-Even Transposition Sort

Every P_i will have an element S_i

$$S_i \leq S_{i+1}^{P_{i+1}} \quad (\leq - \text{partial order})$$

Network: Line Network

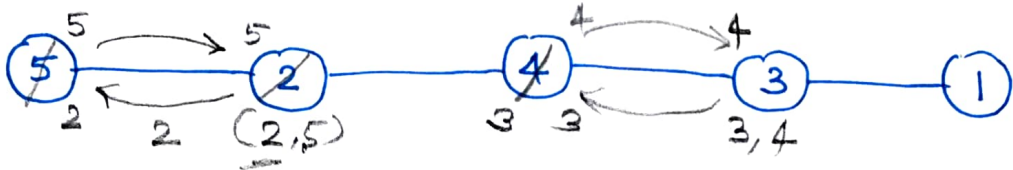
$\rightarrow n$ Processes: $P_1, P_2, \dots, P_i, P_{i+1}, \dots, P_n$



P1 P2 P3 P4 P5 (\leq)

steps

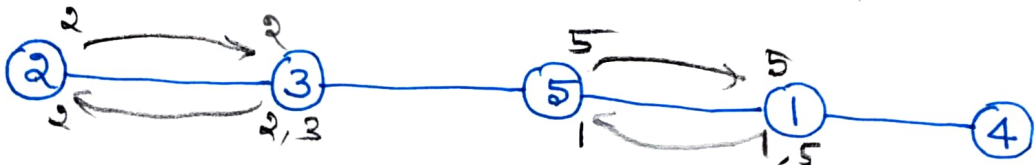
①



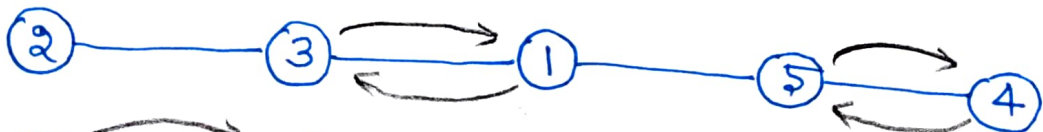
②



③



④



⑤



Soln:



$n=6$

(\leq)

Steps

	<u>P_1</u>	<u>P_2</u>	<u>P_3</u>	<u>P_4</u>	<u>P_5</u>	<u>P_6</u>
1	6	\longleftrightarrow 5	4	\longleftrightarrow 3	2	\longleftrightarrow 1
2	5	6	\longleftrightarrow 3	4	\longleftrightarrow 1	2
3	5	\longleftrightarrow 3	6	\longleftrightarrow 1	4	\longleftrightarrow 2
4	3	5	\longleftrightarrow 1	6	\longleftrightarrow 2	4
5	3	\longleftrightarrow 1	5	\longleftrightarrow 2	6	\longleftrightarrow 4
6	1	3	\longleftrightarrow 2	5	\longleftrightarrow 4	6

Final
Soln

$1 \leq 2 \leq 3 \leq 4 \leq 5 \leq 6$

Steps:

P_1	$\textcircled{P_2}$	P_3	$\textcircled{P_4}$	P_5	$\textcircled{P_6}$
1 — 2		3 — 4		5 — 6	
2	1 — 4		3 — 6		5
2 — 4		1 — 6		3 — 5	
	2 — 6		1 — 5		3
4 — 6		2 — 5		1 — 3	
	4 — 5		2 — 3		1

if $\text{Steps} = n$

Final

$6 \geq 5 \geq 4 \geq 3 \geq 2 \geq 1$

Step	P_1	P_2	P_3	P_4	P_5	P_6
<u>1</u>	<u>1</u>	<u>6</u>	4	<u>2</u>	4	<u>3</u>
2	6	1	4	<u>2</u>	4	3
<u>3</u>	6	4	1	4	<u>2</u>	3
4	6	4	4	1	3	<u>2</u>
<u>5</u>	6	4	4	3	1	<u>2</u>
<u>6</u>	6	4	4	3	<u>2</u>	1

$\frac{n}{2} = 2$

Final $6 \geq 4 \geq 4 \geq 3 \geq 2 \geq 1$

$[n]$ -rounds Algo

