

* Digital Electronics and Logic Design (DELD) - Practical Number - 13

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Title:-

Shift Registers.

Aim:-

Study of Shift Registers [SISO, SIPO, PISO, PIPO]

Objective:-

The study the working of shift registers.

Theory:-

Mode of operation of a shift register:
The various mode in which a shift register can operate are as follows:-

- ① Serial input Serial Output [SISO]
- ② Serial Input Parallel Output [SIPO]
- ③ Parallel Input Serial Output [PISO]
- ④ Parallel Input Parallel Output [PIPO]

1) Serial In Serial Out [SISO]:-

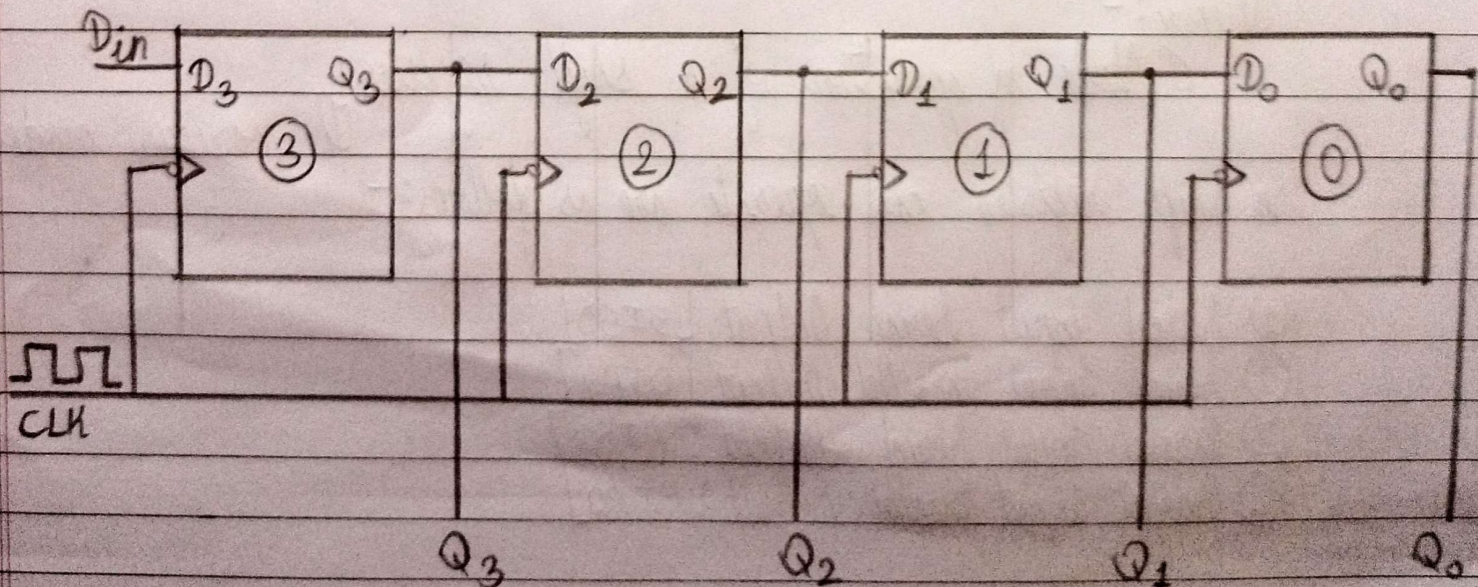
C.P	Q_3	Q_2	Q_1	Q_0	D_{in}
Initially	0	0	0	0	1
↓ 1	0	0	0	1	1
↓ 2	0	0	1	1	1
↓ 3	0	1	1	1	1
↓ 4	1	1	1	1	1

Shift Left Register

C.P	D_{in}	Q_3	Q_2	Q_1	Q_0
Initially	1	0	0	0	0
↓ 1	1	1	0	0	0
↓ 2	1	1	1	0	0
↓ 3	1	1	1	1	0
↓ 4	1	1	1	1	1

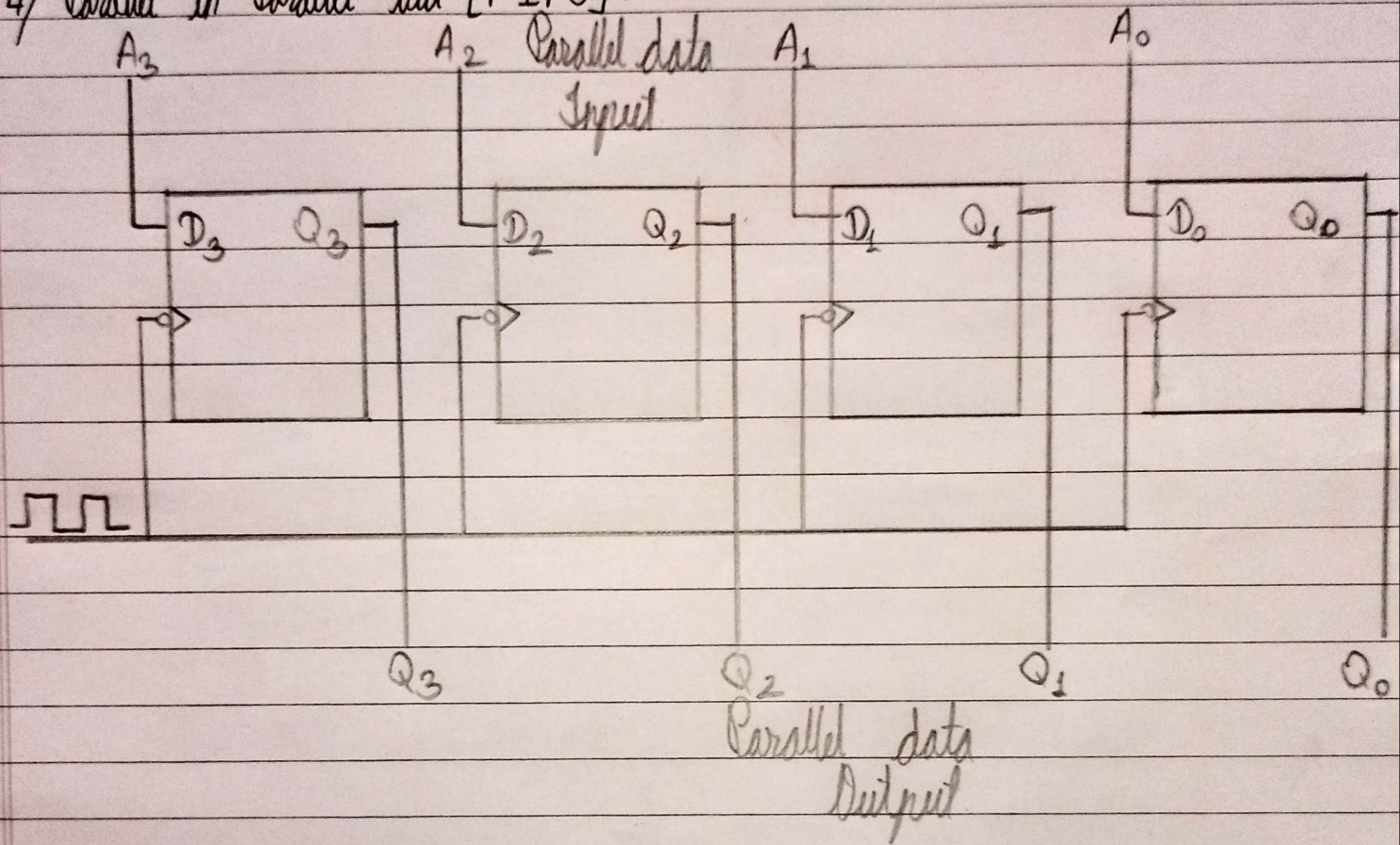
Shift Right Register

2) Serial In Parallel Out [SIPO]:-



CP	Q_3	Q_2	Q_1	Q_0
—	NC	NC	NC	NC
↓	D_3	D_2	D_1	D_0

4) Parallel in Parallel Out [PIPO]:-



Application of Shift Register:-

- ① Temporary data storage.
- ② Delay line
- ③ Serial-to-Parallel Converter
- ④ Parallel-to-Serial Converter
- ⑤ Counter
- ⑥ Sequence Generator

Conclusion:-

Hence, we have studied the shift register and its different types.