**LECTURE 1**

* ***Definition***

Combinational devices: their outputs depend only on the current input combination (i.e., the combination of their input values)

* ***Definition***

Sequential devices: their outputs depend on the current input combination and the sequence of past inputs.

**LECTURE 2**

* ***Axioms of Switching Algebra***

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* ***Theorems of Switching Algebra***

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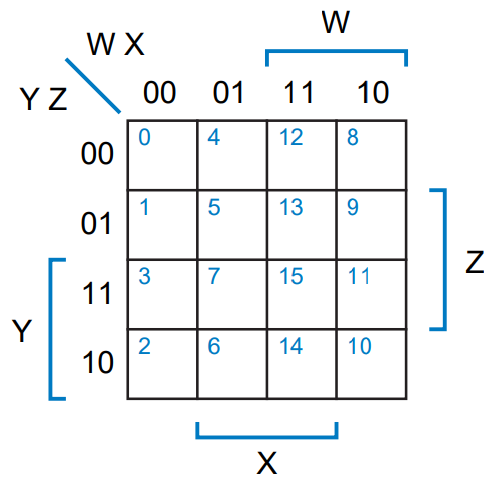
* ***Duality***
* ***Minterms & Maxterms***

**LECTURE 3**

* ***Sum-of-Products -> Product-of-Sums***
* ***AND-OR -> NAND-NAND***
* ***OR-AND -> NOR-NOR***

**LECTURE 4-5**

* ***Karnaugh Maps***

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* ***Minimizing Sum-of-Product***
* ***“Don’t Care” Inputs (d)***
* *distinguished 1-cells*
* *prime implicant (essential & non-essential)*
* *complete sum & minimal sum*

**LECTURE 6-7**

* ***Multiplexer – 2n-to-1 (n inputs)***

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* ***Decoder – n-to-2n***

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* ***Encoder – 2n-to-n***

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* + ***Expanding MUXs & Decoders***
  + ***Implementing Functions w/ Combinational Circuits***
* ***Read-Only Memory (ROM) – n inputs -> 2n options, m outputs***

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* ***Programmable Logic Arrays (PLA)***

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* ***Tri-State Buffer***

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**LECTURE 8-9**

* ***S-R Latch (Set-Reset Latch)***

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* ***D Latch***

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* ***Edge-Triggered D flip-flop***

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* ***S-R flip-flop***

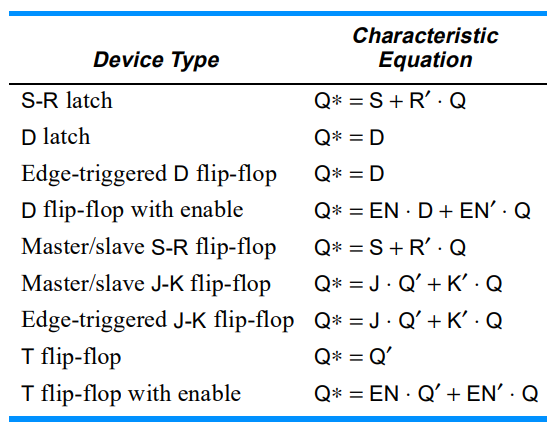
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* ***J-K flip-flop***

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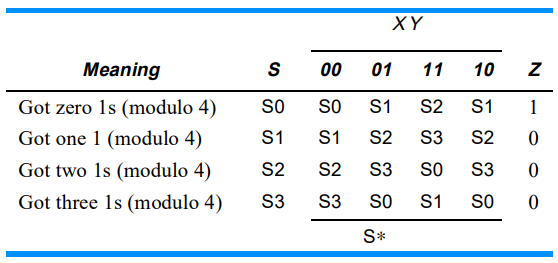
* ***T flip-flop***

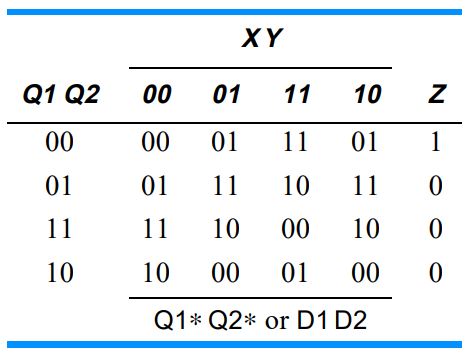
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**LECTURE 10**

* ***1s Counting Machine***



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**LECTURE 11-12**

**LECTURE 13**