**Theory of Computation**

**Introduction**

- It is mainly about what kind of things can you really computed mechanically , how fast and how much space does it take to do so .

- In this subject we are gonna design a machine/system that takes an input , evaluate/check it and after accepting/rejecting the input , it will give output in YES or NO .

Checks/evaluate input

MACHINE/SYSTEM

YES

NO

INPUT

**Layers/levels of TOC :-**

1 . FSM (Finite State Machine) – It is the simplest model of computation .

- It has very limited amount of memory

- It can perform very low level computations and calculations .

2 . CFL (Context Free Language) – It is little more powerful than FSM and can perform some more higher level of computations as compared to FSM .

- here the **language** means **set of strings** not a programming language

3 . Turning Machine – It can perform higher level of computations and calculations .

4 . Undecidable - The *problems that can’t be solved mechanically* , comes under this layer .