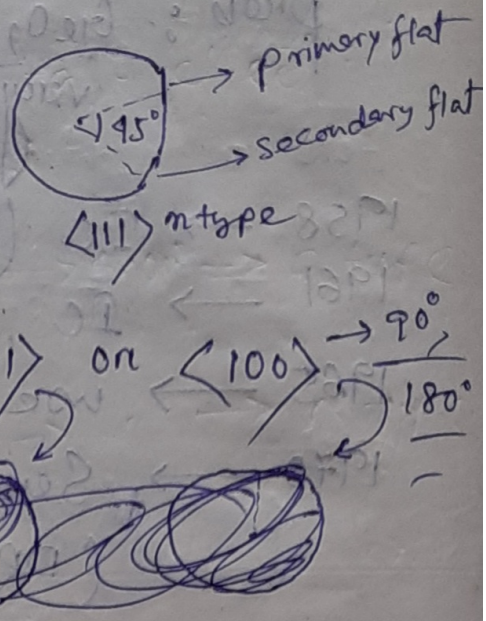
# Lab (Fabrication)

** Silicon →

i) Diameter (125 - 300) mm
ii) Thickness (300 - 500 μm)
iii) Resistivity (·5Ω)
iv) Orientation → ⟨111⟩ or ⟨100⟩
v) Polish or Non polish




1) Cleaning & Contamination
2) Oxidation
3) Lithography
4) Etching
5) Diffusion of the films.
6) Metallization
7) Measurement (Assembling & packaging)

(8 days)

## CLEANING

Silicon Wafer may Consists of,

1) Dust particle (·5 - ·6 μ)
2) Oil & grease
3) inorganic Compound
4) Organic Compound
5) $SiO_2$

** procedure of cleaning *

1) Sample + TCE (Tri chloro etheline) → Boil
{ 5 min and then 3 min in Ultrasonic Cleanear (cleansar) }
→ To remove dust particle.

2) Sample + Accetone → Same as Step 1
→ To remove oil & grease.

3) 1:1 → $H_2O_2 : H_2SO_4$ → It is exothermic reaction
→ Still wait upto stop the reaction and then Clean in DI (18 MΩ) water.
→ To remove inorganic Compound.

4) 5:1:1 → $H_2O : H_2O_2 : NH_4OH$ → heat at 70°C for 10 min, then pass into cool water.
→ To remove acidic Organic Compound.

5) 6:1:1 → $H_2O : H_2O_2 : HCl$ → heat 70°C for 10 min & clean in DI water.
→ To remove alkaline Organic Compound.

6) Dip in 10% (HF) Solution for 1 to 2 min and then dip in methanol to avoid the formation of $SiO_2$.
→ To remove $SiO_2$

Q :—

1. How can u understand the water should be Cleaned ?
→ water should be hydrofobic