

Nishant Jindal



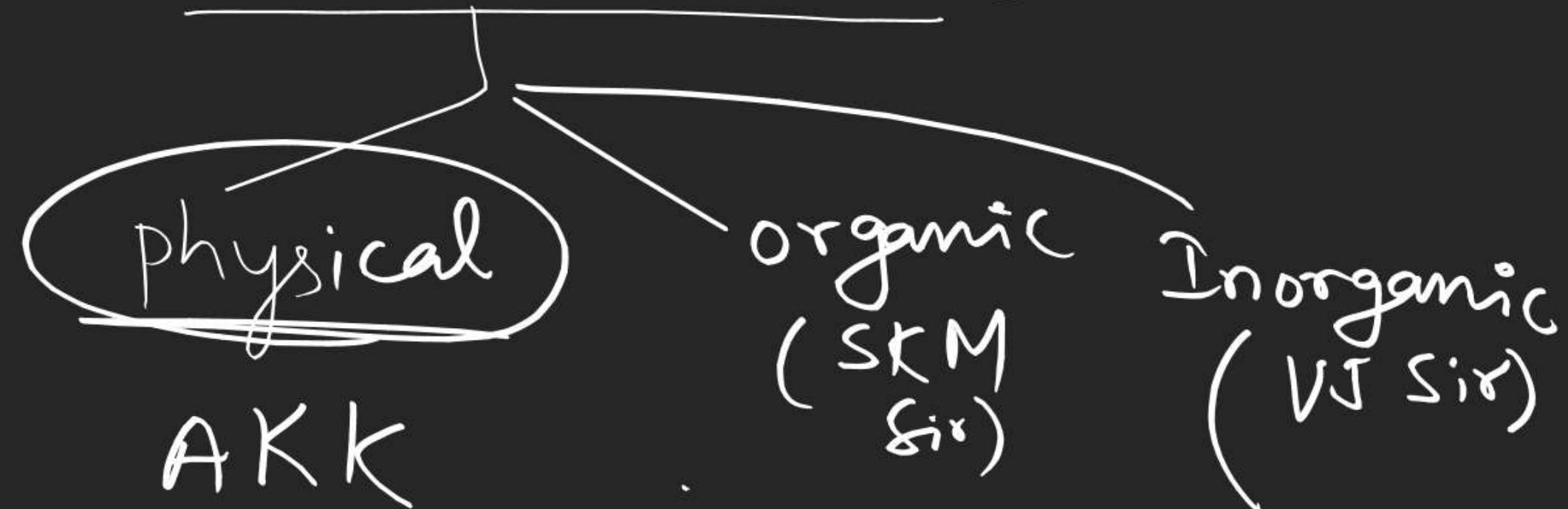
Welcome
Class 11th

to Apni kaksha

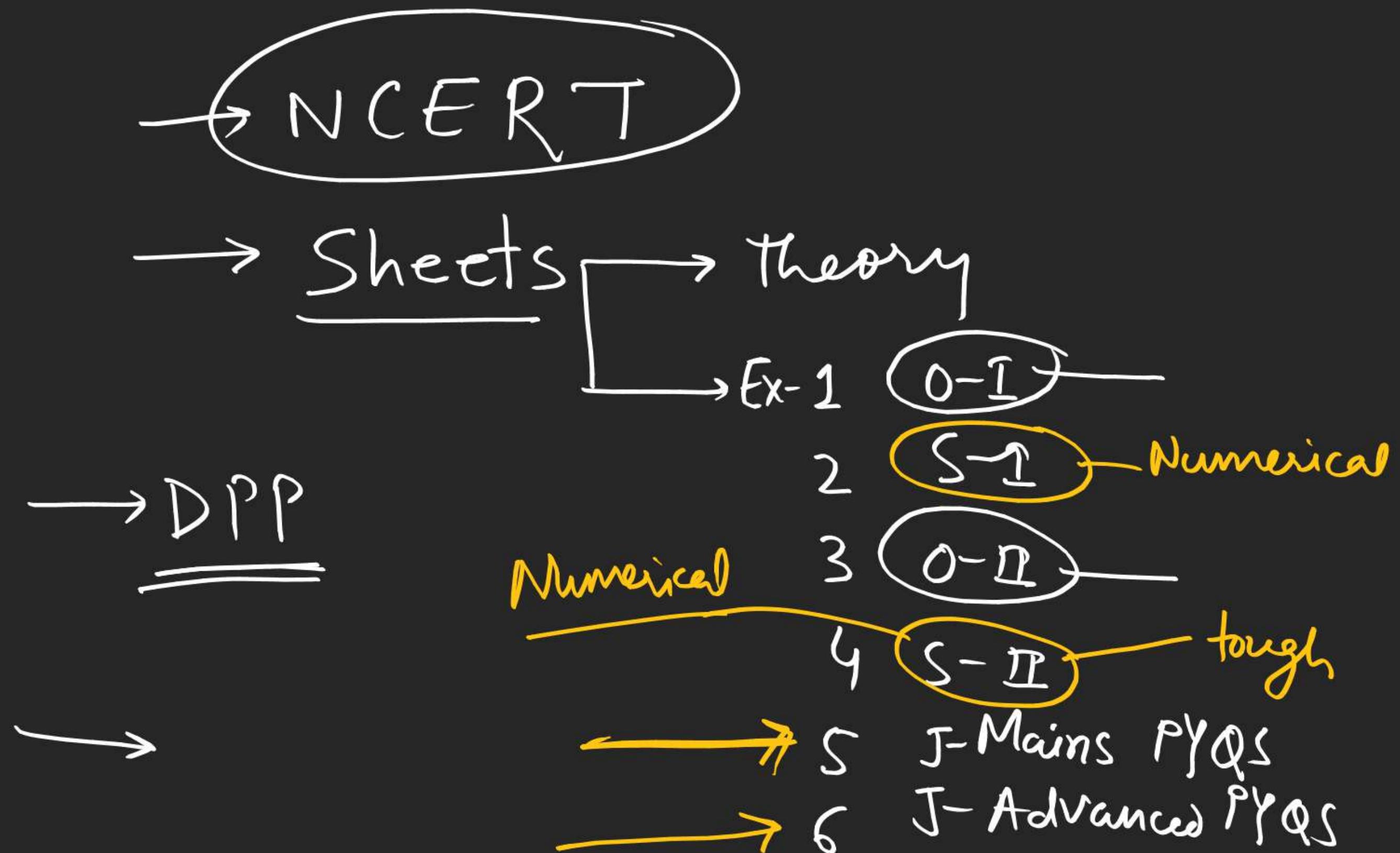


LIVE

Chemistry



Akhilesh Kumar Kanther



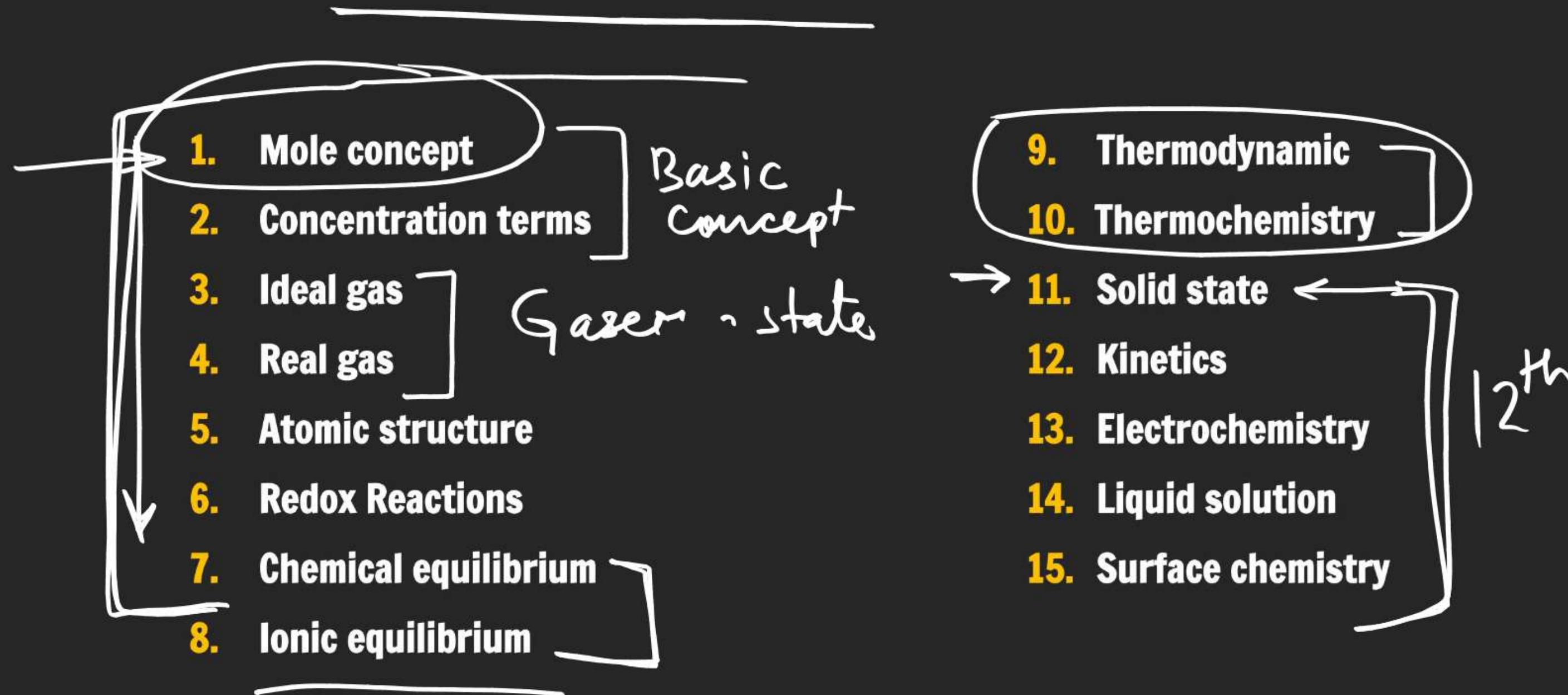
Register (150 pages)

— Class notes

→ Home work

→ Revision

PHYSICAL CHEMISTRY SYLLABUS FOR JEE



Mole concept

Atomic mass

ref

$\frac{1}{12}$ th of mass of single atom C-12 = 1 amu
atomic mass unit

$$\text{Atomic mass} = \frac{\text{mass of an atom}}{\text{mass of reference}}$$

$$\text{Atomic mass} = \frac{\text{mass of an atom}}{\left(\frac{1}{12} \text{th of mass of single atom of } C-12 \right)}$$

$$\text{Atomic mass} = \frac{\text{mass of an atom}}{1 \text{amu}}$$

$$\underline{\underline{\text{mass of an atom}}} = \text{Atomic mass} \times 1 \text{amu}$$

$$\text{Atomic mass of Al} = 27$$

Unit less

$$\text{" " Fe} = 56$$

$$\text{Mass of an atom of Al} = \underline{27 \text{ amu}} = 27 \times 1.67 \times 10^{-24} \text{ gm}$$

$$\text{" " Fe} = \underline{56 \text{ amu}} = 56 \times 1.67 \times 10^{-24} \text{ gm}$$

$$1 \text{ amu} = 1.67 \times 10^{-24} \text{ gm}$$

Q. find no. of atoms in 100 gm Al.

$$\begin{aligned}
 \text{Soln} \\
 \text{no. of atoms of Al} &= \frac{\text{mass}}{\text{mass of one atom of Al}} \\
 &= \frac{100 \text{ gm}}{27 \text{ amu}} = \frac{100 \text{ gm}}{27 \times 1.67 \times 10^{-24} \text{ gm}}
 \end{aligned}$$

gm atomic mass of Al = 27 gm

|| || Fe = 56 gm

Q find no. of atoms of Al in it gm atomic mass?

Soln no. of atoms = $\frac{27 \text{ gm}}{27 \text{ amu}} = \frac{27 \text{ gm}}{\cancel{27} \times 1.67 \times 10^{-24} \text{ gm}}$

$$= \underline{6.022 \times 10^{23}}$$

Q. find no. of atoms of Fe in it gm atomic mass

$$\begin{aligned}
 \text{Soln} \quad \text{no. of atom of Fe} &= \frac{56 \text{ gm}}{56 \text{ amu}} \\
 &= \frac{56 \text{ gm}}{56 \times 1.67 \times 10^{-24}} \\
 &= 6.022 \times 10^{23} = \text{Avogadro's number} \\
 &\qquad\qquad\qquad (N_A)
 \end{aligned}$$

$$\begin{aligned}\text{no. of atoms in } 16 \text{ gm 'O'} &= 14 \text{ gm 'N'} \\ &= 27 \text{ gm Al} \\ &= 56 \text{ gm Fe} \\ &= 23 \text{ gm Na}\end{aligned}$$

$$\text{Molecular mass of } \text{H}_2\text{O} = 2 + 16 = 18$$

$$\text{mass of 1 molecule of H}_2\text{O} = 18 \text{ amu}$$

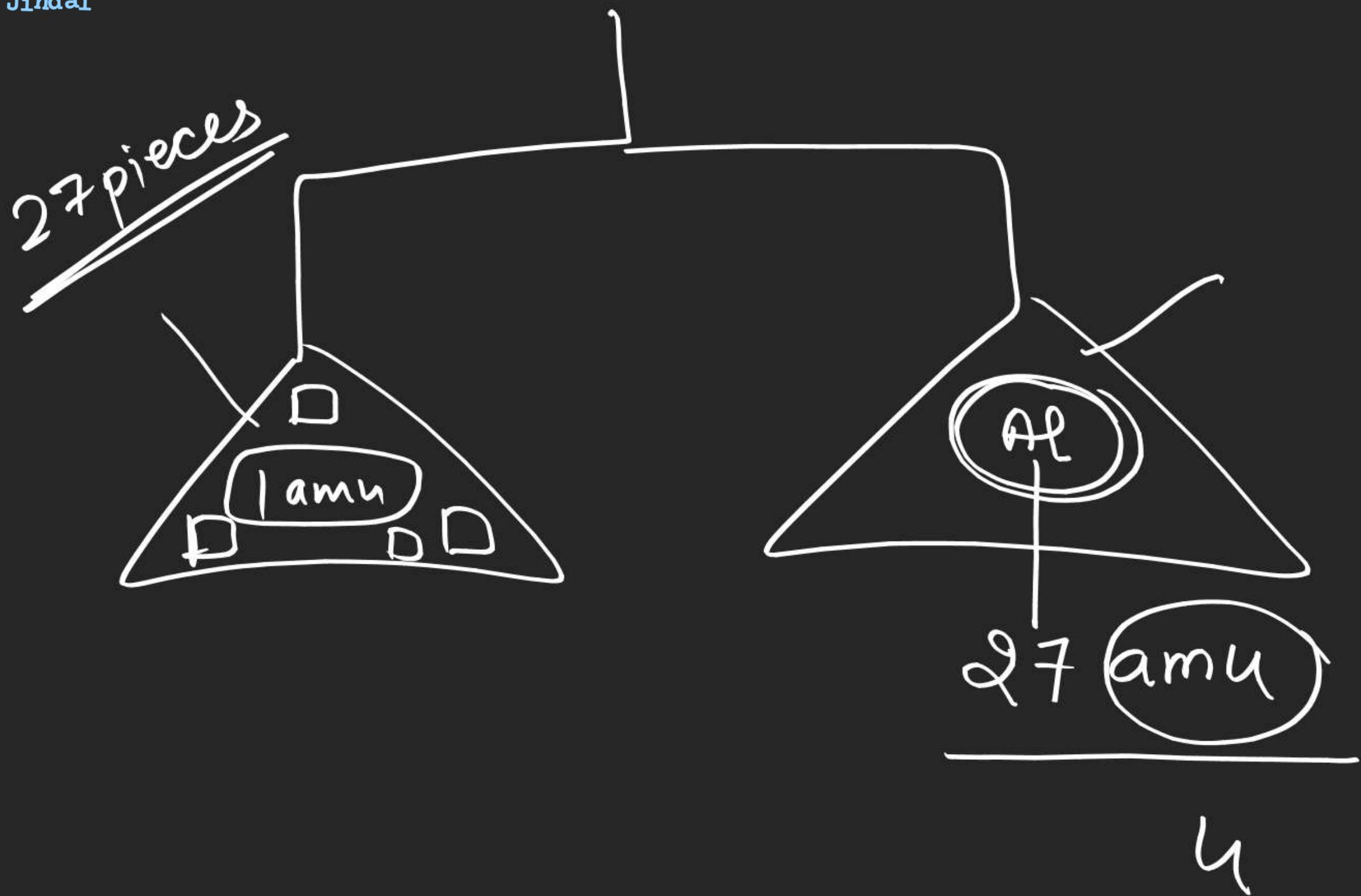
$$= 18 \times 1.67 \times 10^{-24} \text{ gm}$$

$$= 18 \times 1.67 \times 10^{-27} \text{ kg}$$

$$\text{Molecular mass of } \text{H}_2\text{SO}_4 = 2 + 32 + 4 \times 16$$

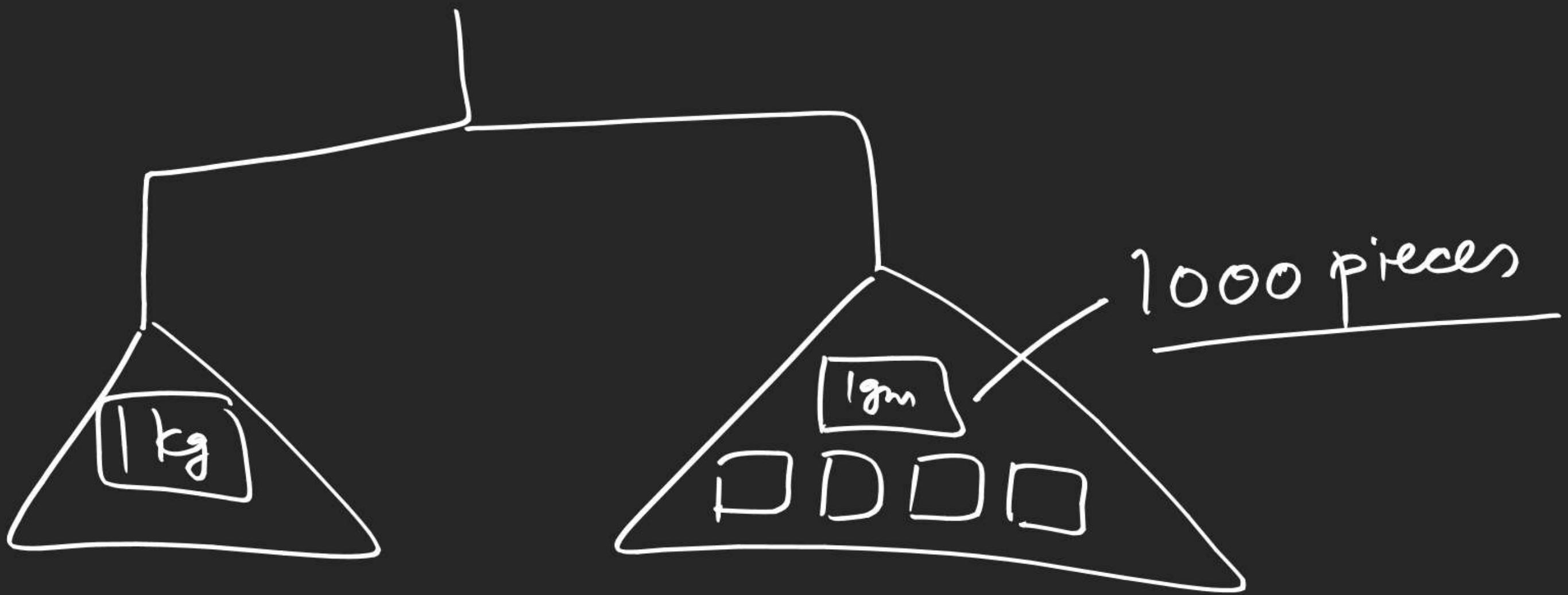
$$= 2 + 32 + 64 = 98$$

$$\text{mass of 1 molecule of H}_2\text{SO}_4 = 98 \text{ amu}$$



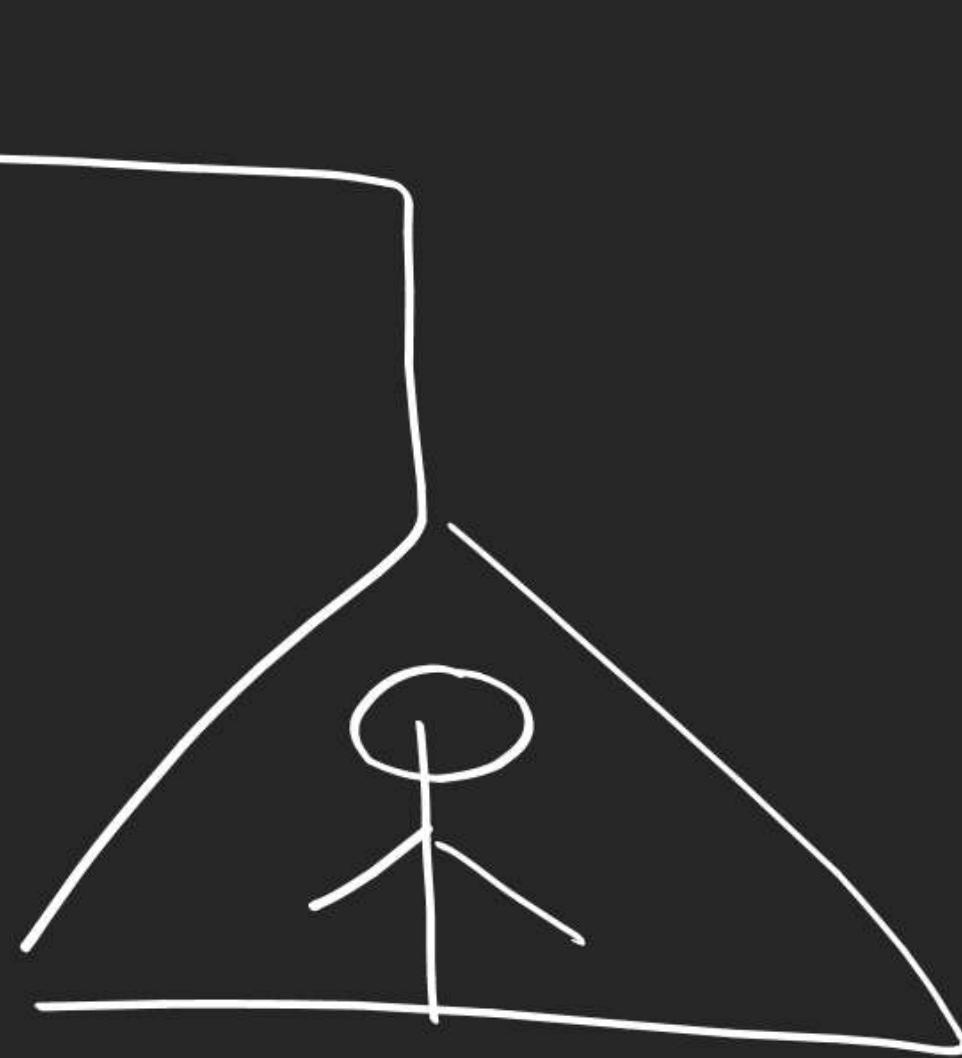
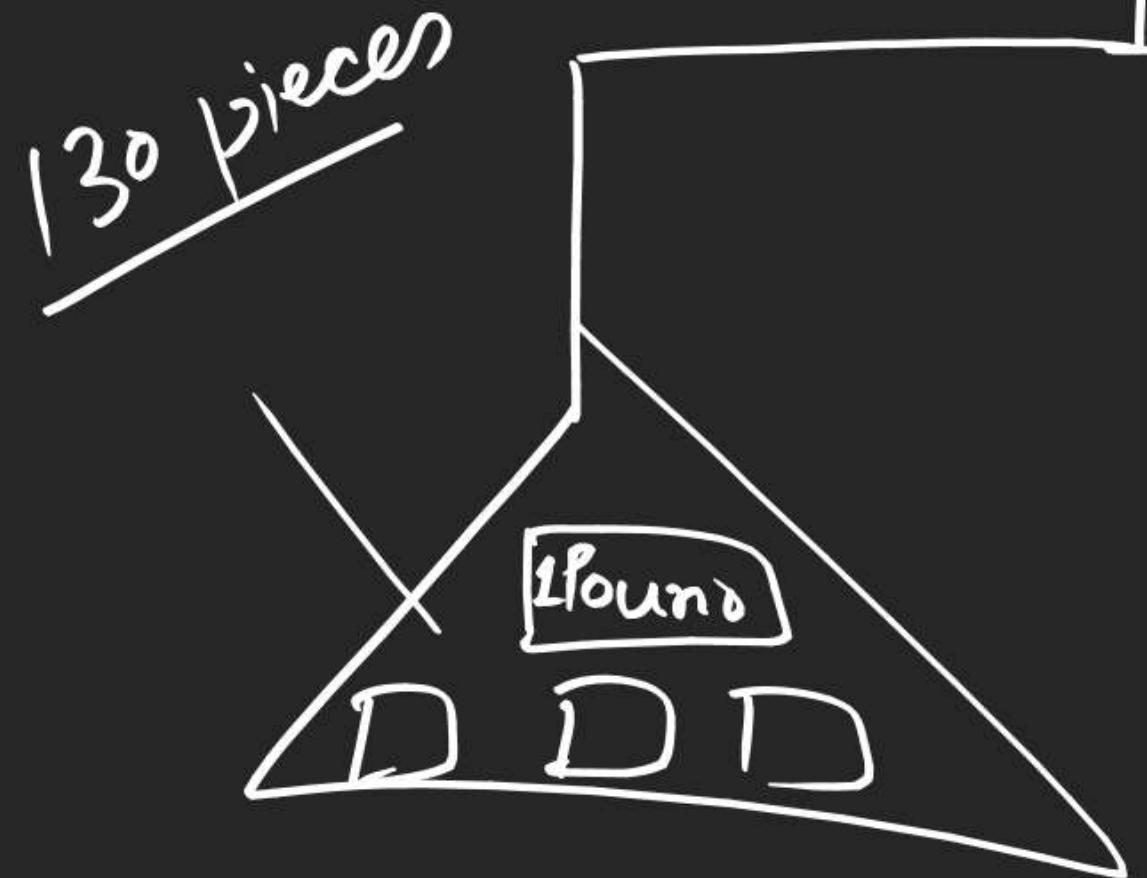


kg
gm
1 pound
= 454 gm



$$\underline{1 \text{ kg} = 1000 \text{ gm}}$$

$$\underline{1 \text{ Pound} = 454 \text{ gm}}$$



130 Pound

