10+2 PCM NOTES

BY

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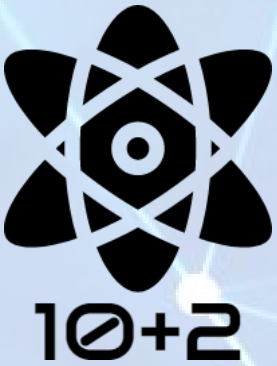
(PDF version handwritten notes of Maths, Physics and Chemistry for 10+2 competitive exams like JEE Main, WBJEE, NEST, IISER Entrance Exam, CUCET, AIPMT, JIPMER, EAMCET etc.)



General Chemistry

* Useful Conversion :

1. Length - $1\ Å = 10^{-10}\ m$, $1\ nm = 10^{-9}\ m$,
   $1\ pm = 10^{-12}\ m$

2. Volume - $1\ L = 1000\ mL = 1000\ cc = 1\ dm^3 = 10^{-3}\ m^3$

3. Pressure - $1\ atm = 760\ mmHg$ or torr
   $= 101325\ Pa$ or N/m^2
   $1\ bar = 10^5\ Pa$

4. Energy - 1 calorie $= 4.184\ J$, $1\ eV = 1.6022 \times 10^{-19}\ J$
   $1\ J = 10^7$ ergs.

5. Mass - 1 amu $= 1.66 \times 10^{-27}$ kg.

* Physical Constants :

Bohr radius, $a_0 = 0.529\ Å$

Boltzman Cons., $K = 1.3807 \times 10^{-23}\ J/K$

Mass of e $= 9.11 \times 10^{-31}$ kg.

Gas Constant, $R = 0.8206$ L atm/mol K
$= 1.987$ Cal/mol K
$= 8.314$ J/mol K.

Planck's Cons. $h = 6.6262 \times 10^{-34}\ J\ s$

Rydberg Cons. $R_\infty = 2.1799 \times 10^{-18}\ J = 1.0974 \times 10^7\ m^{-1}$

* Important Molar masses ($g\ mol^{-1}$).

Al – 26.98, B – 10.81, Br – 79.91, Ca – 40.08, C – 12.01, Cl – 35.49, Co – 58.93, Cu – 63.54, F – 19, Ga – 69.72, Au – 196.97, He – 4, H – 1.0079, Fe – 55.85, Pb – 207.19, Li – 6.94, Mg – 24.31, Mn – 54.94, Hg – 200.59, Ni – 58.71, N – 14.0067, O – 16, P – 30.97, K – 39.10, Si – 28.08, Ag – 107.87, Na – 22.99, Xe – 131.30, Zn – 65.37.

* Common name of some compounds:

Dry ice – Solid CO_2, Slaked lime – $Ca(OH)_2$, Bleaching Powder – $CaOCl_2$, Nausadar – NH_4Cl, Caustic Soda – $NaOH$, Rock salt – $NaCl$, Caustic potash – KOH, Potash Alum – $K_2SO_4 \cdot Al_2(SO_4)_3 \cdot 24H_2O$, Epsom – $MgSO_4, 7H_2O$, Quick lime – CaO, Plaster of paris – $CaSO_4 \cdot \frac{1}{2} H_2O$, Gypsum – $CaSO_4 \cdot 2H_2O$, Green vitrol – $FeSO_4 \cdot 7H_2O$, Mohr's salt – $FeSO_4 \cdot (NH_4)_2SO_4 \cdot 6H_2O$, Blue vitrol – $CuSO_4 \cdot 5H_2O$, White vitrol – $ZnSO_4 \cdot 7H_2O$, Marsh gas – CH_4, Vinegar – CH_3COOH, Hypo – $Na_2S_2O_2$, Potash ash – K_2CO_3, Baking soda – $NaHCO_3$, Washing soda – $Na_2CO_3 \cdot 10H_2O$, Chalk (marble) – $CaCO_3$, Lunar caustic – $AgNO_3$, Laughing gas – N_2O, Chloroform – $CHCl_3$, Vermelium – HgS, Borax – $Na_2B_4O_7 \cdot 10H_2O$, Alcohol – C_2H_5OH, Sugar – $C_{12}H_{22}O_{11}$, Globar's salt – $Na_2SO_2 \cdot 10H_2O$, TNT – $C_6H_3CH_3(NO_2)_3$, Calomel – $HgCl$, Sand – SiO_2.