

a) Atomic Structure and Mixtures

b) Periodic Table

c) Structure and Bonding

d) Quantitative Chemistry

e) Chemical Changes

f) Energy Changes

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Ionic Bonding

Ionic Bonding

Nanoparticles

Covalent Bonding

Graphene and Fullerene

Metallic Bonding

State of Matter

Ionic compounds

Covalent Compounds

Diamond and Graphite



IONIC BONDING: Metals and Non Metals

It is between a metal and a non metal

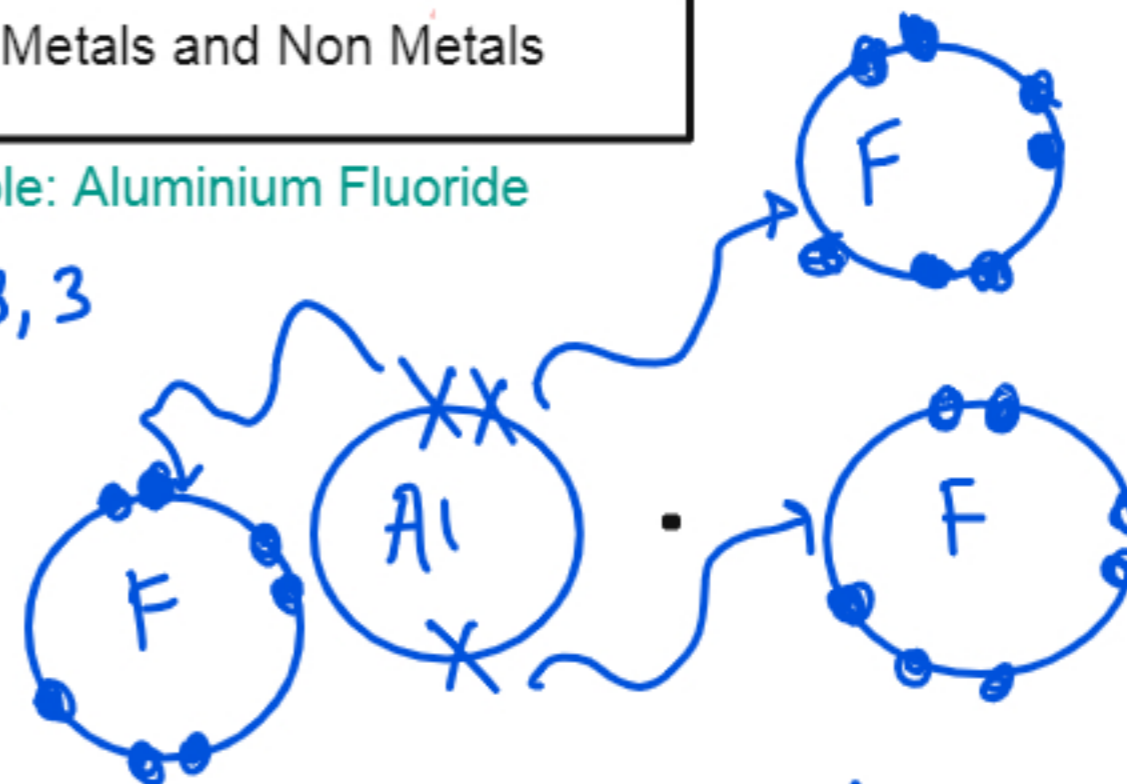
Metal gains an electron and become positively charged.

Non- Metal loses an electron and becomes negatively charged.

There is a strong electrostatic force of attraction between opposite charged ions resulting in ionic bonding.

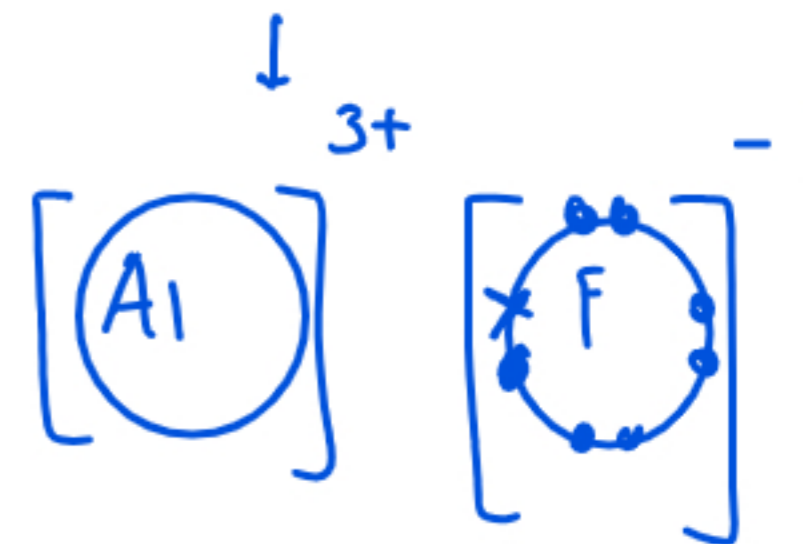
Example: Aluminium Fluoride

Al = 2, 8, 3
F = 2, 7



Dot and Cross Diagram

Write the symbols
Write electronic configuration
show outer electrons
show transfer
show charges





IONIC BONDING: Metals and Non Metals

Example: Magnesium Chloride

✓ It is between a metal and a non metal

look

Metal ~~gains~~ an electron and become positively charged.

Non-Metal ~~loses~~ ^{gains} an electron and becomes negatively charged.

There is a strong electrostatic force of attraction between opposite charged ions resulting in ionic bonding.

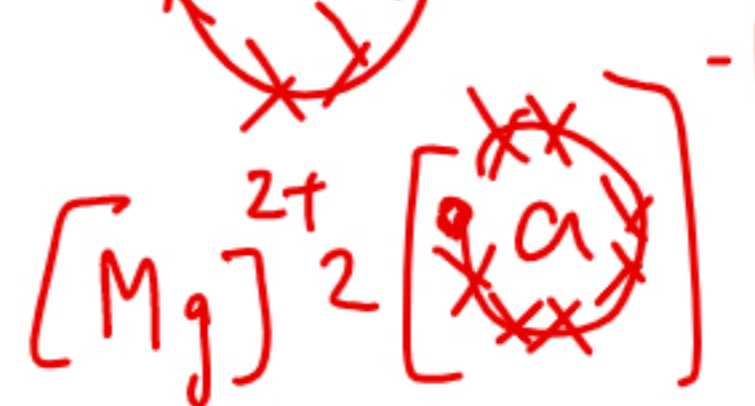
Mg = 2, 8, 2

Cl, 2, 8, 7



Dot and Cross Diagram

Write the symbols
Write electronic configuration
show outer electrons
show transfer
show charges



Ionic Compound Properties

- Brittle solids with definite crystal shapes
- Good insulators in solid form, but become good conductors in liquid or dissolved form
- High melting and boiling point compared to molecular compounds

In ionic compounds, there is a strong electrostatic force of attraction between the opposite charged ions. This results in the formation of giant ionic lattice.

In the solid form, the ions are not free to move as they are held together by strong electrostatic force of attraction. In molten or when they are dissolved in water the ions are free to move and conduct electricity.

In ionic compounds, there is a strong electrostatic force of attraction between the opposite charged ions. This results in the formation of giant ionic lattice. Large amount of energy is required to overcome the strong electrostatic force of attraction. Therefore, ionic compounds have high melting and boiling point.

Source: Flickr.com

Greater the charge of an ionic lattice, stronger is the electrostatic force of attraction. Greater the melting and bp.
For ex Aluminium chloride > Magnesium chloride > sodium chloride

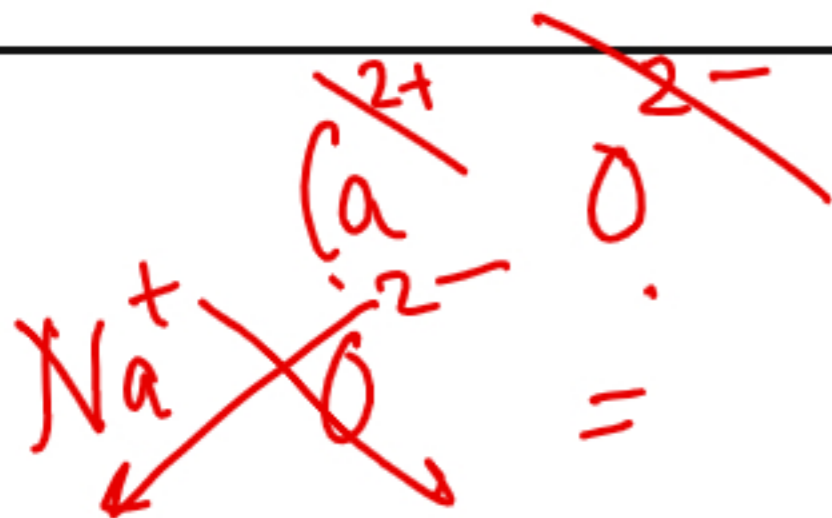
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→ Write the Symbols

→ Write the charges

→ (Upto group the charge is same as the group number. After group 4 it is group number -8)

→ Criss Cross



FORMULAE OF IONIC COMPOUNDS !!!

a) Sodium Oxide = Na_2O

b) Magnesium Nitride

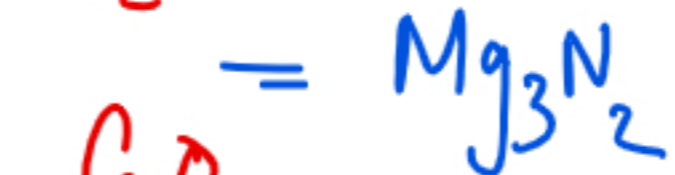
c) Calcium Oxide = CaO

d) Sodium Sulphide = Na_2S

e) Sodium Chloride

f) Magnesium chloride

g) Aluminium Chloride



Writing Formulas For Binary Ionic Compounds

metal	non-metal	<u>Identify the metal and non-metal</u>
Calcium	oxide	
Ca^{+2}	O^{-2}	
<p>i) Write the symbols ii) Write the charges ii) Cross over the charges from top to bottom</p>		

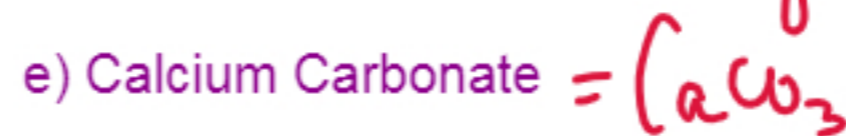
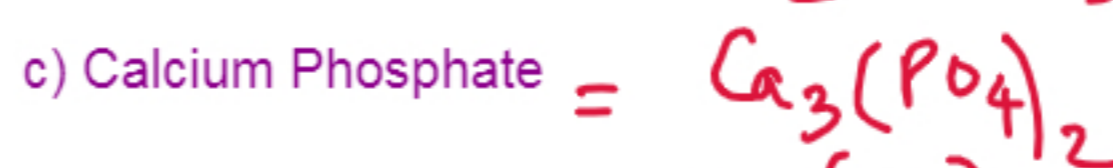
Group→	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
↓Period																		
1	1 H																	2 He
2	3 Li	4 Be											5 B	6 C	7 N	8 O	9 F	10 Ne
3	11 Na	12 Mg											13 Al	14 Si	15 P	16 S	17 Cl	18 Ar
4	19 K	20 Ca	21 Sc	22 Ti	23 V	24 Cr	25 Mn	26 Fe	27 Co	28 Ni	29 Cu	30 Zn	31 Ga	32 Ge	33 As	34 Se	35 Br	36 Kr
5	37 Rb	38 Sr	39 Y	40 Zr	41 Nb	42 Mo	43 Tc	44 Ru	45 Rh	46 Pd	47 Ag	48 Cd	49 In	50 Sn	51 Sb	52 Te	53 I	54 Xe
6	55 Cs	56 Ba	57 La *	72 Hf	73 Ta	74 W	75 Re	76 Os	77 Ir	78 Pt	79 Au	80 Hg	81 Tl	82 Pb	83 Bi	84 Po	85 At	86 Rn
7	87 Fr	88 Ra	89 Ac **	104 Rf	105 Db	106 Sg	107 Bh	108 Hs	109 Mt	110 Ds	111 Rg	112 Cn	113 Nh	114 Fl	115 Mc	116 Lv	117 Ts	118 Og
				* 58 Ce	59 Pr	60 Nd	61 Pm	62 Sm	63 Eu	64 Gd	65 Tb	66 Dy	67 Ho	68 Er	69 Tm	70 Yb	71 Lu	
				* 90 Th	91 Pa	92 U	93 Np	94 Pu	95 Am	96 Cm	97 Bk	98 Cf	99 Es	100 Fm	101 Md	102 No	103 Lr	

Source: Wikimedia Commons

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FORMULAE OF COMPLEX IONS

Positive	Negative
Ammonium NH_4^+	Hydroxide - OH^-
	Carbonate - CO_3^{2-}
	Sulphate - SO_4^{2-}
	Nitrate - NO_3^-
	Phosphate - PO_4^{3-}



NEXT STEP !!!!!



Check the specification



Do Exam Style Questions on this topic

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