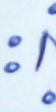
NAMING compounds, Writing Formulas and Lewis Structure

B1

Element	Number Of valence Electrons	Lewis Structure
Potassium	1	
Phosphorous	5	
Boron	3	
Bromine	7	
Magnesium	2	
Sulfur	6	
Carbon	4	
Neon	8	

B1 Naming compounds ionic Compounds

Compound	Name
Na_2O	Sodium Oxide
$BaCl_2$	Barium Chloride
CaS	Calcium Sulfide
K_3N	Potassium Nitride
$AlCl_3$	Aluminium Chloride
Mg_3P_2	Magnesium phosphide

B2. ionic compound with variable Charges

compound	Name
PbS	Lead (II) Sulfide
Fe_2S_3	Iron (III) Sulfide
$CrCl_3$	Chromium (III) Chloride
SnI_4	Tin (IV) iodide

B3 ionic Compounds with Polyatomic Ions !

Compound	Name
$MgSO_4$	Magnesium Sulphate
$Al(NO_3)_3$	Aluminium Nitrate
Li_2CO_3	Lithium Carbonate
$Ca_3(PO_4)_2$	Calcium Phosphate
NH_4Cl	Ammonium Chloride

B4 Covalent Compounds

Compound	Name
PCl_3	Phosphorus trichloride
SBr_4	Sulfur tetrabromide
N_2O_5	Dinitrogen Pentoxide
SO_2	Sulfur Dioxide

Writing Chemical Formulas

C1: ionic compounds

Name	Cation	Anion	Formula
Potassium chloride	K^+	Cl^-	KCl
Magnesium oxide	Mg^{2+}	O^{2-}	MgO
Sodium Nitride	Na^+	~~A^{3}~~ N^{3-}	Na_3N
Aluminium Sulfide	Al^{3+}	S^{2-}	Al_2S_3
Calcium phosphide	Ca^{2+}	P^{3-}	Ca_3P_2

C:2 ionic compounds with variable charges

Name	Cation	Anion	Formula
Iron (II) fluoride	Fe^{2+}	F^-	FeF_2
Chromium (III) chloride	Cr^{3+}	Cl^-	$CrCl_3$
Tin (IV) oxide	Sn^{4+}	O^{2-}	SnO_2
Copper (I) nitride	Cu^{+}	N^{3-}	Cu_3N
Gold (III) bromide	Au^{3+}	Br^-	$AuBr_3$

C3. ionic compounds with polyatomic ions

Name	Cation	Anion	formula
Barium carbonate	Ba^{2+}	CO_3^{2-}	$BaCO_3$
Litmium nitrate	Li^-	NO_3^-	~~LiN~~ $LiNO_3$
Calcium hydroxide	Ca^{2+}	OH^-	$Ca(OH)_2$
Sodium sulfite	Na^+	SO_3^{2-}	Na_2SO_3

C4: Covalent compounds

Name	~~Formula~~ Cation	Anion	Formula
Dinitrogen monoxide	N_2O		
Oxygen dichloride			
Diphosphorous pentoxide	OCl_2		
iodine monochloride	ICl		
Phosphorous trihydride	PH_3		

Part D Molecular model

Formula	valence electrons	Lewis structure	central atom	lone pairs central atom	molecular shape	Polar or non-polar
$HOCl$	14	H:Ö:Cl:	1	2	H–O–Cl	polar
PH_3	8	H:P:H	1	1	H–P(H)–H	polar
SF_2	20	:F:S:F:	1	2	F–S–F	non-polar
Br_2	14	:Br:Br:	N/a	N/a	Br–Br	polar
HCN	10	H:C:::N:	1	1	H–C≡N:	Non-polar
~~SiH_4~~ $SiCl_4$	32	:Cl:Si:Cl: (:Cl:)	1	0	Cl–Si(Cl)–Cl	polar

Lewis structure

total e⁻ Group	atoms	lone pair	molecular geometry	Example
1	1	n/a	linear	H – F
2	2	0	linear	O :: O
3	3	0	linear	N ≡ N
	4	0	linear	O = C = C
	3	1	linear	C=O
	2	2	H – N – H	H – N(H) – H

Definition

Covalent Bond → is a chemical bond which involves sharing of electrons pairs between atoms

ionic bond → is a chemical bond which involves complete transfer of valence electrons from one atom to another.

Bonding Pair → is a pair of electrons that are in a bond

Lone Pair → pair of valence electrons that are not shared with another atom in a covalent bond.

Polar Covalent bond → is a covalent bond in which atoms have an unequal attraction for electrons and so the sharing is unequal.

A single bond has 1 electron that ..... and is considered to be — single electron group(s)

A A double bond has 2 electrons that .... and it is considered to be double electron group(s)

A triple bond has 3 electrons that .... and it is considered to be triple electron group(s)

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