

WB Chem 7 18-17-17

① Formula

aluminum nitrate

lead (IV) permanganate

zinc chromate

vanadium (II) phosphate

silver hydroxide

② Arrange the following atoms in order of increasing reactivity using arrows and words:

Rb, Li, Na, K

③ Which atom is more reactive?

Ca or Na

④ The radius of the atom is determined by:
Zeff vs. core
Protons vs. Zeff
Zeff vs. volume

⑤ Select OD that violates Hund's Rule: write the OD on your board!

$\frac{1\uparrow}{1s} \frac{1\uparrow}{2s} \frac{1\uparrow}{2p} \frac{1\uparrow}{2p} \frac{1\uparrow}{2p}$
 $\frac{1\uparrow}{3s} \frac{1\uparrow}{3s} \frac{1\uparrow}{3p} \frac{1\uparrow}{3p} \frac{1\uparrow}{3p}$
 $\frac{1\uparrow}{4s} \frac{1\uparrow}{4s} \frac{1\uparrow}{4p} \frac{1\uparrow}{4p} \frac{1\uparrow}{4p}$

⑥ Write the net ionic eqn between:

AgNO_3 and NaCl

$\text{Pb(NO}_3)_2$ and KI

$\text{Ba(NO}_3)_2$ and Na_2SO_4

⑦ Write the ionization equations:

AgNO_3 , $\text{Pb(NO}_3)_2$, $\text{Ba(NO}_3)_2$

MgCl_2

⑧ When Rb reacts with oxygen, the charge on Rb is: _____

⑨ A soln is flame tested producing a deep red flame. The element is _____.

⑩ Choose the element with the lowest IE.

Cl, P, S, Si

⑪ An atom of Cl has 17e-. How many energy levels does it need for its e-?

⑫ Name _____

Ca(OH)_2

$\text{Fe(NO}_3)_3$

$(\text{NH}_4)_2\text{Cr}_2\text{O}_7$

$\text{Cr}_2(\text{SO}_4)_3$

⑬ Write the EC: He, Ne, Ar

⑭ Mg reacts with oxygen. Write the correct chemical formula for the compound that forms.

⑮ Name _____

Na_2CO_3

NaOH

MgBr_2

KCl

FeCl_2

⑯ Which element has the highest attractive forces?

Al, P, S, Si, Cl, Ar

⑰ Which element has the lowest attractive forces?

Cr, Mn, Sc, Ti, Fe, Zn

⑱ The smallest atom is: Bi, Sb, As, P, N

⑲ Select the atom with 2 single e- in the highest occupied energy level:

Mg, O, N, F

⑳ Write the outer valence EC for F, Cl, Br.

㉑ Which of the following elements have 2 unpaired e- in their EC?

㉒ Select the smallest element: Br, Se, As, Ge

㉓ Calc # core e- in C

㉔ Calc # core e- in Ar.

㉕ Name this poly anion: $\text{O}=\text{O}=\text{O}=\text{O}=\text{O}$

㉖ Write the ionization equation:

Al(OH)_3

SnCl_4

HgBr_2

$\text{Cr}_2(\text{SO}_4)_3$

KMnO_4

Fe(OH)_3

㉗ Which compound is most ionic? PCl_3 , OF_2 , BB_3 , LiF , SF_6

㉘ Given:

NaCl , MgBr_2 , LiOH , CuCO_3

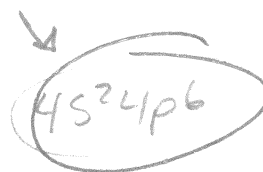
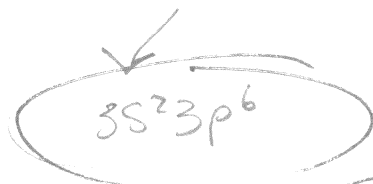
The dominant chemical bond is _____.

⑤ when calcium and bromine react, they form an ionic compound.

① write the symbol for each ion that forms: Ca^{+2} Br^-

② what is the chem. formula: CaCl_2

③ ECV for Ca^{+2} and Br^-



④ name: calcium bromide

2 Formula

14 aluminum nitrate $\text{Al}(\text{NO}_3)_3$

12 lead (IV) permanganate $\text{Pb}(\text{MnO}_4)_4$

Zinc chromate ZnCrO_4

Vanadium (II) phosphate $\text{V}_3(\text{PO}_4)_2$

Silver hydroxide AgOH

Copper (II) acetate $\text{Cu}(\text{C}_2\text{H}_3\text{O}_2)_2$

2 Arrange the following atoms in order of increasing reactivity.

Rb, Li, Na, K $Rb > K > Na > Li$

~~$Li > Na > K > Rb$~~

3 Which atom was more reactive?

Ca or Na

4 The radius of an atom is determined by which combination?

Z_{eff} vs core

#protons vs Z_{eff}

Z_{eff} vs valence

#protons vs core

5 Select the OD that violates Hund's rule:

$\frac{1\downarrow}{1s}$	$\frac{1\downarrow}{2s}$	$\frac{1\downarrow}{2p}$	—	—
1s	2s	2p		
$\frac{1\downarrow}{1s}$	$\frac{1\downarrow}{2s}$	$\frac{1\downarrow}{2p}$	—	—
1s	2s	2p		
$\frac{1\downarrow}{1s}$	$\frac{1\downarrow}{2s}$	$\frac{1\downarrow}{2p}$	$\frac{1\downarrow}{2p}$	$\frac{1\downarrow}{2p}$
1s	2s	2p		

$\frac{1\downarrow}{1s}$	$\frac{1\downarrow}{2s}$	$\frac{1\downarrow}{2p}$	$\frac{1\downarrow}{2p}$	$\frac{1\downarrow}{2p}$
1s	2s	2p		

6 write the net ionic ppt rxn for the rxn between:



7 write the ionization equation:



~~1~~ ~~2~~ ~~3~~ ~~4~~ ~~5~~ ~~6~~ ~~7~~ ~~8~~ ~~9~~ ~~10~~ ~~11~~ ~~12~~ ~~13~~ ~~14~~ ~~15~~ ~~16~~ ~~17~~ ~~18~~ ~~19~~ ~~20~~ ~~21~~ ~~22~~ ~~23~~ ~~24~~ ~~25~~ ~~26~~ ~~27~~ ~~28~~ ~~29~~ ~~30~~ ~~31~~ ~~32~~ ~~33~~ ~~34~~ ~~35~~ ~~36~~ ~~37~~ ~~38~~ ~~39~~ ~~40~~ ~~41~~ ~~42~~ ~~43~~ ~~44~~ ~~45~~ ~~46~~ ~~47~~ ~~48~~ ~~49~~ ~~50~~ ~~51~~ ~~52~~ ~~53~~ ~~54~~ ~~55~~ ~~56~~ ~~57~~ ~~58~~ ~~59~~ ~~60~~ ~~61~~ ~~62~~ ~~63~~ ~~64~~ ~~65~~ ~~66~~ ~~67~~ ~~68~~ ~~69~~ ~~70~~ ~~71~~ ~~72~~ ~~73~~ ~~74~~ ~~75~~ ~~76~~ ~~77~~ ~~78~~ ~~79~~ ~~80~~ ~~81~~ ~~82~~ ~~83~~ ~~84~~ ~~85~~ ~~86~~ ~~87~~ ~~88~~ ~~89~~ ~~90~~ ~~91~~ ~~92~~ ~~93~~ ~~94~~ ~~95~~ ~~96~~ ~~97~~ ~~98~~ ~~99~~ ~~100~~ ~~101~~ ~~102~~ ~~103~~ ~~104~~ ~~105~~ ~~106~~ ~~107~~ ~~108~~ ~~109~~ ~~110~~ ~~111~~ ~~112~~ ~~113~~ ~~114~~ ~~115~~ ~~116~~ ~~117~~ ~~118~~ ~~119~~ ~~120~~ ~~121~~ ~~122~~ ~~123~~ ~~124~~ ~~125~~ ~~126~~ ~~127~~ ~~128~~ ~~129~~ ~~130~~ ~~131~~ ~~132~~ ~~133~~ ~~134~~ ~~135~~ ~~136~~ ~~137~~ ~~138~~ 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~~1345~~ ~~1346~~ ~~134~~

Directions: Name the compound. Then write the ionization equation.

1. AuBr_3 gold(III) bromide

2. MgHPO_4 magnes. hydrophosphate

3. Ag_2SO_4 silver sulfate

4. $\text{Ca}(\text{OH})_2$ calcium hydroxide

5. $\text{Fe}(\text{NO}_2)_3$ iron(III) nitrite

6. $(\text{NH}_4)_2\text{Cr}_2\text{O}_7$ ammonium dichromate

7. $\text{Cr}(\text{CN})_3$ chromium(III) cyanide

8. Li_2CO_3 lithium carbonate

9. BaSO_4 barium sulfate

10. $\text{Mn}(\text{OH})_2$ manganese(II) hydroxide

Q1 Write the EC of He, Ne, Ar.

~~15~~

He $1s^2$

Ne $1s^2 2s^2 2p^6$

~~16~~

Ar $1s^2 2s^2 2p^6 3s^2 3p^6$

~~17~~

Principle quantum number (l) refers to shape of the orbital.

~~18~~

Principle quantum number (m_l) refers to orientation of the orbital.

~~19~~

neutral ~~20~~

An atom with at. number equal

~~21~~

to 37 has 37 electrons.

+1 charge

$36 e^-$

14

~~22~~

When Mg reacts with nitrogen,

~~23~~

Mg ionizes to form a charge

of +2.

Mg_2O MgO_2 MgO

Naming Ionic Compounds Worksheet One

Give the name of the following ionic compounds:

- 1) Na_2CO_3 sodium carbonate
- 2) NaOH sodium hydroxide
- 3) MgBr_2 magnesium bromide
- 4) KCl pot chloride
- 5) FeCl_2 iron (II) chloride
- 6) FeCl_3 iron (III) chloride
- 7) Zn(OH)_2 zinc hydroxide
- 8) BeSO_4 beryllium sulfate
- 9) CrF_2 ~~cr~~ chromium (II) fluoride
- 10) Al_2S_3 Alu sulfide
-
- 11) PbO lead (II) oxide
- 12) Li_3PO_4 lithium phosphate
- 13) TiI_4 titanium (IV) iodide
- 14) Co_3N_2 cobalt (I) nitride
- 15) Mg_3P_2 mag phosphide
- 16) $\text{Ga(NO}_2)_3$ gallium (III) nitrite
- 17) Ag_2SO_3 silver sulfite
- 18) NH_4OH ammonium hydroxide
- 19) Al(CN)_3 alu cyanide
- 20) $\text{Be(CH}_3\text{COO)}_2$ bery. acetate
 $\text{C}_2\text{H}_3\text{O}_2$

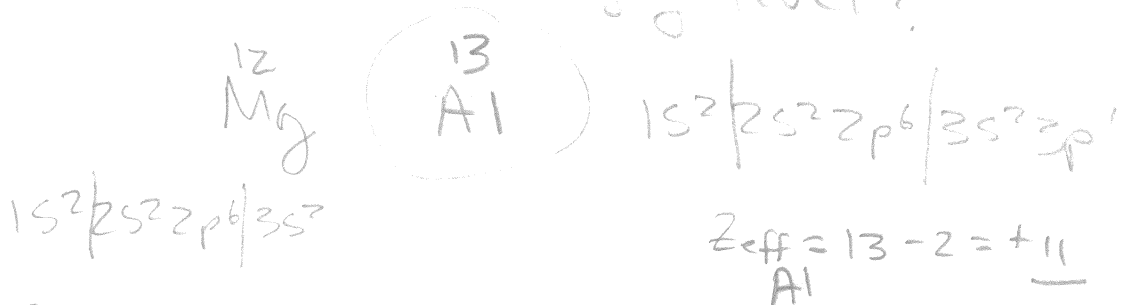
12 ~~12~~ ~~13~~ ~~14~~ ~~15~~ ~~16~~ ~~17~~ ~~18~~ 16
which of the following elements has
higher attractive forces on the valence
e-? ~~12~~ Al, P, S, Si, Cl, Ar

~~12~~ ~~13~~ ~~14~~ ~~15~~ ~~16~~ ~~17~~ ~~18~~ 17
which of the following elements
has lower attractive forces on
its valence e-?
~~12~~ ~~13~~ Cr, Mn, Sc, Ti, Fe, Zn

~~12~~ ~~13~~ ~~14~~ ~~15~~ ~~16~~ ~~17~~ ~~18~~ 9
which of the following elements has
higher attractive forces on its
outer e-? ~~12~~
F, I, Cl, Br

~~12~~ ~~13~~ ~~14~~ ~~15~~ ~~16~~ ~~17~~ ~~18~~ 18
which of the following elements is
smallest? ~~12~~ Bi, Sb, As, P, N
~~12~~ ~~13~~ ~~14~~ ~~15~~ ~~16~~ ~~17~~ ~~18~~

13 which element, Mg or Al, requires more ionization energy to remove an e^- from the $n=2$ energy level?



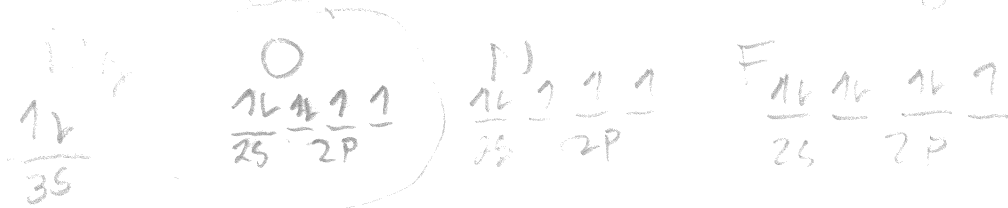
$$Z_{\text{eff Mg}} = 12 - 2 = \underline{+10}$$

Why: Al has higher nuc. charge

$$Mg = +10$$

$$A_1 = +11$$

The gas is hydrogen.



20

Q1 Write EC for F, Cl, Br
and underline outer valence



21

21

Q2 Which of the following elements
have 2 unpaired e^- ?



~~41~~ ~~40~~ ~~112~~ ~~210~~ ~~22~~ 22
 Select the smallest element from

~~58~~ ~~17~~ (Br), Se, As, Ge

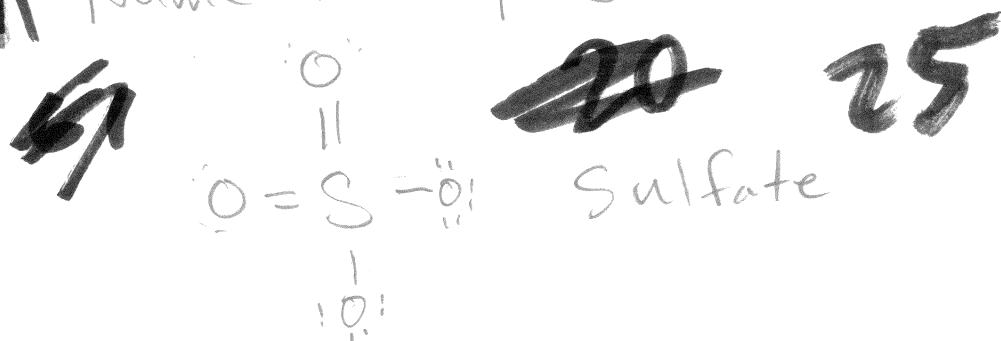
~~41~~ ~~113~~ ~~211~~ ~~22~~
 Given C with atomic number 6,
 Calculate the core electrons.

~~59~~ ~~18~~ C $\begin{array}{c} 1s^2 \\ \text{core} \end{array} \begin{array}{c} 2s^2 2p^2 \\ \text{valence} \end{array}$ 23

~~114~~ ~~110~~ ~~111~~ ~~87~~
 Given Ar, calculate the core e⁻

~~60~~ ~~19~~ ~~22~~ ~~23~~ ~~24~~
¹⁸Ar $\begin{array}{c} 1s^2 2s^2 2p^6 \\ \text{core} \end{array} \begin{array}{c} 3s^2 3p^6 \\ \text{val} \end{array}$ 24

~~105~~ ~~38~~
 Name this polyanion:



Ionize

~~2~~

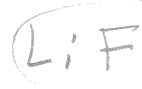


25

~~26~~

27

which compound is most ionic?



28

~~29~~

28

The type of bond in the following compounds is a _____ bond.



covalent

Ionic