

Question 1: Label each compound below as ionic or covalent.

H<sub>2</sub>O                    covalent

LiBr                    ionic

KCl                    ionic

C<sub>12</sub>H<sub>22</sub>O<sub>11</sub>            covalent

NaNO<sub>3</sub>                ionic

CO<sub>2</sub>                    covalent

Question 2: How many protons and electrons are present in each **ion** below?

Br<sup>-</sup>            protons    35    electrons    36

O<sup>2-</sup>            protons    8    electrons    10

Ag<sup>+</sup>            protons    47    electrons    46

P<sup>3-</sup>            protons    15    electrons    18

Fe<sup>2+</sup>            protons    26    electrons    24

Al<sup>3+</sup>            protons    13    electrons    10

Li<sup>+</sup>            protons    3    electrons    2

Question 3: Using the number of protons and electrons in each ion below, give the proper symbol for the ion (ie Fe<sup>2+</sup>, N<sup>3-</sup>, etc).

protons = 22    electrons = 18    ion symbol    Ti<sup>4+</sup>

protons = 34    electrons = 36    ion symbol    Se<sup>2-</sup>

protons = 53    electrons = 54    ion symbol    I<sup>-</sup>

protons = 87    electrons = 86    ion symbol    Fr<sup>+</sup>

protons = 79    electrons = 76    ion symbol    Au<sup>3+</sup>

protons = 20    electrons = 18    ion symbol    Ca<sup>2+</sup>

protons = 7    electrons = 10    ion symbol    N<sup>3-</sup>

Question 4: How many electrons will each main group element below lose or gain when forming an ion?

lithium	1 electron lost
chlorine	1 electron gained
calcium	2 electrons lost
selenium	2 electrons gained
aluminum	3 electrons lost
fluorine	1 electron gained
sulfur	2 electrons gained

Question 5: Give the name of each of the following ionic compounds.

KCl	<i>potassium chloride</i>	BaO	<i>barium oxide</i>
Rb <sub>2</sub> O	<i>rubidium oxide</i>	Na <sub>3</sub> P	<i>sodium phosphide</i>
AlF <sub>3</sub>	<i>aluminum fluoride</i>	Mg <sub>3</sub> N <sub>2</sub>	<i>magnesium nitride</i>
CaI <sub>2</sub>	<i>calcium iodide</i>	RaCl <sub>2</sub>	<i>radium chloride</i>
FeI <sub>3</sub>	<i>iron (III) iodide</i>	MnCl <sub>2</sub>	<i>manganese (II) chloride</i>
HgO	<i>mercury (II) oxide</i>	Cu <sub>2</sub> O	<i>copper (I) oxide</i>
CuO	<i>copper (II) oxide</i>	SnBr <sub>4</sub>	<i>tin (IV) bromide</i>
CoCl <sub>2</sub>	<i>cobalt (II) chloride</i>	CrBr <sub>3</sub>	<i>chromium (III) bromide</i>
CaO	<i>calcium oxide</i>	PbO <sub>2</sub>	<i>lead (IV) oxide</i>
CsCl	<i>cesium chloride</i>	FeS	<i>iron (II) sulfide</i>
Rb <sub>3</sub> N	<i>rubidium nitride</i>	LiBr	<i>lithium bromide</i>
TiF <sub>4</sub>	<i>titanium (IV) fluoride</i>	Be <sub>3</sub> P <sub>2</sub>	<i>beryllium phosphide</i>
K <sub>2</sub> O	<i>potassium oxide</i>	CaSe	<i>calcium selenide</i>
NiBr <sub>2</sub>	<i>nickel (II) bromide</i>	NaI	<i>sodium iodide</i>

Question 6: Give the name of each of the following ionic compounds containing polyatomic ions. I recommend using the **Exam 1 Handout** found in Module 5 for a table of polyatomic ion names.

$(\text{NH}_4)_2\text{SO}_4$	<i>ammonium sulfate</i>
$\text{Fe}_2(\text{SO}_4)_3$	<i>iron (III) sulfate</i>
$\text{Be}_3(\text{PO}_4)_2$	<i>beryllium phosphate</i>
$\text{Ca}(\text{OH})_2$	<i>calcium hydroxide</i>
$\text{Li}_2\text{CO}_3$	<i>lithium carbonate</i>
$\text{Cr}(\text{CN})_3$	<i>chromium (III) cyanide</i>
$\text{NH}_4\text{HCO}_3$	<i>ammonium bicarbonate</i>

Question 7: Give the chemical formula for each of the following ionic compounds. I recommend using the **Exam 1 Handout** found in Module 5 for a table of polyatomic ion names.

silver (I) oxide	$\text{Ag}_2\text{O}$
aluminum sulfide	$\text{Al}_2\text{S}_3$
beryllium bromide	$\text{BeBr}_2$
sodium chlorite	$\text{NaClO}_2$
iron (III) oxide	$\text{Fe}_2\text{O}_3$
sodium phosphate	$\text{Na}_3\text{PO}_4$
ammonium chromate	$(\text{NH}_4)_2\text{CrO}_4$
titanium (IV) chloride	$\text{TiCl}_4$
barium oxide	$\text{BaO}$
cobalt (III) hydroxide	$\text{Co}(\text{OH})_3$
potassium carbonate	$\text{K}_2\text{CO}_3$
lithium sulfate	$\text{Li}_2\text{SO}_4$
manganese (II) sulfate	$\text{MnSO}_4$
lead (II) sulfide	$\text{PbS}$

tin (IV) acetate	$\text{Sn}(\text{C}_2\text{H}_3\text{O}_2)_4$
potassium permanganate	$\text{KMnO}_4$
chromium (II) fluoride	$\text{CrF}_2$
ammonium sulfite	$(\text{NH}_4)_2\text{SO}_3$
copper (I) oxide	$\text{Cu}_2\text{O}$
aluminum hydroxide	$\text{Al}(\text{OH})_3$
potassium perchlorate	$\text{KClO}_4$
rubidium carbonate	$\text{Rb}_2\text{CO}_3$
sodium nitrite	$\text{NaNO}_2$