

Atomic and Naming

- 1.) Which of the following describes compounds?
 - a.) they have atoms as their smallest particles.
 - b.) they can be easily separated by physical methods.
 - c.) they cannot be broken down into simpler substances.
 - d.) they are composed of two or more elements in fixed proportions.
- 2.) Atoms form compounds through the interactions of which?
 - a.) nuclei.
 - b.) protons.
 - c.) neutrons.
 - d.) electrons.
- 3.) What are the valence electrons in an atom?
 - a.) the total electrons.
 - b.) the electrons in the outermost shell.
 - c.) the number of electrons that always occupy the first shell.
 - d.) the number of electrons that equal the protons.
- 4.) Which of the following is an example of an ion?
 - a.) O
 - b.) O^{2-}
 - c.) O_2
 - d.) 2O
- 5.) Which of the following is the smallest particle of an element?
 - a.) ion.
 - b.) atom.
 - c.) molecule.
 - d.) compound.

6.) What is the main difference between ionic and covalent bonding?

Ionic bonding involves electron(s) being donated from one species to the other to form the bond where as in covalent the electron(s) are shared between the two species.

7.) How do ions form?

I	Atoms gain or lose protons
II	Atoms gain or lose neutrons
III	Atoms gain or lose electrons

a.) I only

b.) II only

c.) III only

d.) I and III

8.) What are the names of the following?

a.) Ca^{2+} Calcium ion

b.) K Potassium

c.) K^+ Potassium ion

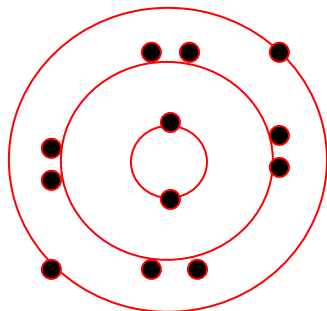
d.) S^{2-} Sulphur ion

e.) SO_4^{2-} Sulphate ion

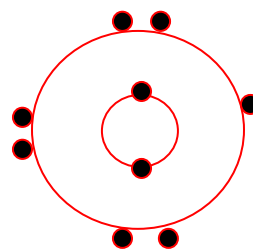
f.) NH_4^+ Ammonium ion

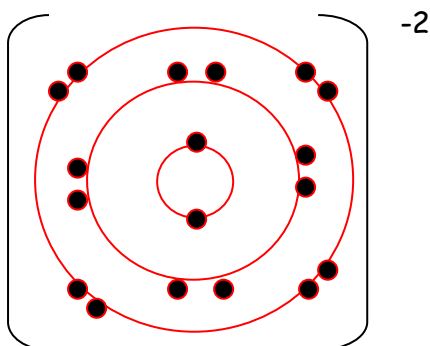
9.) Draw Bohr diagrams for Magnesium, fluorine, and a sulphur ion.

Magnesium



Fluorine



Sulphur

10.) For each of the following elements state the nearest noble gas, the number of electrons each element will lose or gain and the symbol for the ion that will form.

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|--------|---------------|-----------|------------------------|
| a.) H | <u>Helium</u> | <u>-1</u> | <u>H⁻¹</u> |
| b.) Li | <u>Helium</u> | <u>+1</u> | <u>Li⁺¹</u> |
| c.) S | <u>Argon</u> | <u>-2</u> | <u>S⁻²</u> |
| d.) Ca | <u>Argon</u> | <u>+2</u> | <u>Ca⁺²</u> |

11.) Which of the following is barium nitrate?

- a.) Ba₃N₂
 b.) BaNO₃
 c.) Ba(NO₃)₂
 d.) Ba(NO₂)₂

12.) Classify the following as ionic or covalent and write its chemical formula.

- | | | |
|------------------------|-----------------|---|
| a.) ammonium sulphate | <u>ionic</u> | <u>(NH₄)₂SO₄</u> |
| b.) lead (II) chloride | <u>ionic</u> | <u>PbCl₂</u> |
| c.) aluminum sulphide | <u>ionic</u> | <u>Al₂S₃</u> |
| d.) carbon disulphide | <u>covalent</u> | <u>CS₂</u> |

13.) Classify the following as ionic or covalent and write its chemical name or formula.

- | | | |
|---------------------------------------|-----------------|----------------------------------|
| a.) KCl | <u>ionic</u> | <u>potassium chloride</u> |
| b.) (NH ₄) ₃ N | <u>ionic</u> | <u>ammonium nitride</u> |
| c.) P ₃ Br ₆ | <u>covalent</u> | <u>triphosphorus hexabromide</u> |

d.) Cr_2O_3	<u>ionic</u>	<u>chromium (III) oxide</u>
e.) $\text{Mg}_3(\text{PO}_4)_2$	<u>ionic</u>	<u>magnesium phosphate</u>
f.) NBr_3	<u>covalent</u>	<u>nitrogen tribromide</u>
g.) lead (IV) oxide	<u>ionic</u>	<u>PbO_2</u>
h.) $\text{Ca}(\text{MnO}_4)_2$	<u>ionic</u>	<u>calcium permanganate</u>
i.) magnesium sulphate	<u>ionic</u>	<u>MgSO_4</u>