binary ionic compounds (Homework)

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1.
A simple ion with a +1 charge (for example, Na^+) results when an atom _____ electrons.

2.
Positive ions are called _____.
whereas negative ions are called _____.

3.
Simple negative ions formed from single atoms are given names that end with the letters _____.

4.
How many electrons are contained in each of the following ions?

(a) K^+ (b) Mn^{2+} (c) Co^{3+} (d) Co^{2+}

(e) Cr^{3+} (f) I^- (g) Fe^{3+} (h) P^{3-}

5.
For the following pairs of ions, use the concept that a chemical compound must have a net charge of zero to predict the formula of the simplest compound that the ions are most likely to form. (Type your answer using the format CO2 for CO_2.)

(a) Na^+ and C^{4-} (b) Sn^{4+} and N^{3-} (c) Fe^{3+} and P^{3-} (d) Sn^{4+} and C^{4-}

(e) Mg^{2+} and N^{3-} (f) Mg^{2+} and C^{4-} (g) Fe^{3+} and C^{4-} (h) Fe^{3+} and S^{2-}

6.
Write the correct formula for the ionic compound composed of potassium and iodide. (Type your answer using the format CH4 for CH_4.)

7.

Write the correct formula for the ionic compound composed of magnesium and chloride. (Type your answer using the format CH4 for CH_4.)

8.
Give the number of valence electrons in an atom of each of the following.
(a) cesium
(b) zinc
(c) strontium
(d) gallium
(e) rubidium

9.
Predict the reactivity of the following atoms based on their electron configurations.
(a) potassium

(b) fluorine

(c) neon
10.
Which of the following compounds are not likely to occur?
Explain your choices.

11.
Give the number of valence electrons for each of the following atoms.
(a) bromine
(b) arsenic
(c) sulfur
(d) phosphorus
(e) oxygen

12.
Give the name of each of the following simple binary ionic compounds.
(a) NaI
(b) CaF_2
(c) Al_2S_3
(d) $CaBr_2$
(e) SrO
(f) AgCl
(g) CsI
(h) Li_2O

13.
Enter the symbol for the element represented by each of the following ground state configurations for the neutral atom.
$1s^2 2s^2 2p^6 3s^2 3p^2$

[Rn]$7s^1$
[Ar]$4s^2 3d^{10} 4p^5$
$1s^2 2s^2 2p^6 3s^2 3p^6 4s^1 3d^5$
$1s^2 2s^2 2p^6 3s^2 3p^6$

14.
How many unpaired electrons are present in each of the following ions? Enter your answers as numerals.
Mg^{2+}
V^{2+}
Co^{2+}
Rb^{1+}
Sn^{2+}

15.
What is the formula for lithium oxide?

16.
What is the formula for aluminum bromide?

17.
What is the formula for strontium chloride?

18.
What is the formula for magnesium fluoride?

19.
How many neutrons are found in the isotope oxygen-18?
neutrons