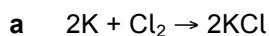




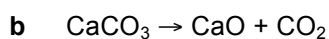
1 Complete the table to show what happens when these elements react together, or whether no reaction occurs.

elements	what happens			type of bonding (if reaction occurs)		type of compound (if reaction occurs)	
	no reaction	electrons shared	electrons transferred	covalent	ionic	molecular	ionic
iron + iodine							
helium + chlorine							
oxygen + sulfur							

2 Write a word equation for each of the following reactions.

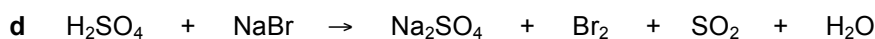
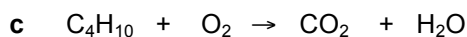
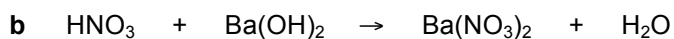
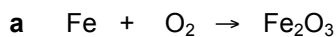


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3 Balance the equation for each of the following reactions.





1 a In what order are the elements arranged in the Periodic Table? .....

.....  
.....

b How many electrons are in the outer shell of atoms of the following elements?

aluminium ..... fluorine ..... silicon .....

c Give the group and period number of the element with electron structure 2,8,5.

group ..... period.....

d Which group are the following elements in? The electron structure of these elements is given.

2,8,8,1 ..... 2,6 ..... 2,8,18,5 .....

2 a Explain why elements that are in the same group in the Periodic Table have similar properties.

.....  
.....  
.....

b Explain why the elements in Group 0 are unreactive.

.....  
.....  
.....

c Explain why the elements in Group 1 are very reactive.

.....  
.....  
.....



1 Give the formula of the following ions.

bromide ..... sulfate ..... silver(I) .....

2 Give the formula of the following ionic compounds.

potassium sulfide ..... sodium carbonate .....

calcium hydroxide ..... aluminium nitrate .....

3 Potassium fluoride is an ionic compound containing  $K^+$  and  $F^-$  ions.

a Give the electron structure of the  $K^+$  ions. ....

b Give the electron structure of the  $F^-$  ions. ....

c Potassium fluoride melts at  $858^\circ\text{C}$ . Explain why potassium fluoride has a high melting point.

.....  
.....  
.....

d Explain why potassium fluoride conducts electricity when molten.

.....  
.....  
.....

e Explain why potassium fluoride does not conduct electricity as solids.

.....  
.....  
.....



1 What is the mass of one mole of  $\text{CO}_2$ ?

.....  
.....  
.....

2 How many moles are there in 99 g of  $\text{H}_2\text{O}$ ?

.....  
.....  
.....

3 What is the mass of 0.250 moles of  $\text{N}_2$ ?

.....  
.....  
.....

4 How many moles are there in 1.2 kg of Mg?

.....  
.....  
.....

5 Calculate the relative formula mass ( $M_r$ ) of each of the following substances.

a  $\text{Mg}(\text{NO}_3)_2$  .....

b oxygen .....

c potassium sulfate .....

6 Calculate the mass in grams of one atom of  $^{31}\text{P}$ . Give your answer in standard form to 3 significant figures.  
(the Avogadro constant =  $6.022 \times 10^{23} \text{ mol}^{-1}$ )

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