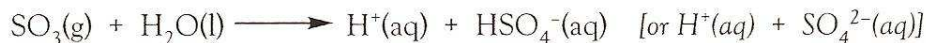


## KEY to REACTION PREDICTION 2

### Reaction Prediction — 2

Write formulas for the reactants and predicted products for the chemical reactions that follow. Assume that in all cases a reaction occurs. The equation does not need to be balanced. Descriptive symbols do not need to be included. Write all substances in their proper form—as ions if appropriate—and cancel any spectator ions. Assume that the reactions are in aqueous solution unless otherwise stated.

- a) Sulfur trioxide gas is added to excess water.



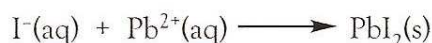
Balanced = 1,1,1,1 or 1,1,2,1  
ii. pH decreases ( $\text{H}^+$ ) is made

- b) Carbon disulfide vapor is burned in excess oxygen.



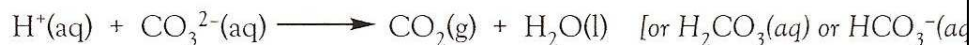
Balanced = 1,3,1,2 or 1,4,1,2  
ii. More moles of Gas on reactant side so less pressure

- c) Solutions of sodium iodide and lead nitrate are mixed.



Balanced = 2,1,1  
ii.  $\text{Na}^+$  and  $\text{NO}_3^-$  are spectator ions

- d) Dilute hydrochloric acid is added to a solution of potassium carbonate.



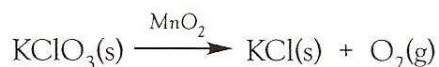
Balanced = 2,1,1,1 or 2,1,1,1 or 1,1,1,1  
ii. bubbling (gas given off)

- e) A strip of magnesium is added to a solution of silver nitrate.



Balanced = 1,2,1,2  
ii.  $= 2\text{e}^- + 2 \text{Ag}^+ \rightarrow \text{Ag}$

- f) Solid potassium chlorate is heated in the presence of a manganese dioxide catalyst.



Balanced = 2,2,3  
ii.  $\text{Cl}^{+5} \rightarrow \text{Cl}^{-1}$

- g) A solution of hydrogen peroxide is heated.



Balanced = 2,2,1  
ii. A glowing splint would relight (oxygen)

- h) Solid copper(II) sulfide is heated strongly in oxygen gas.



Balanced = 1,1,1,1 or 2,3,2,2 or 4,5,2,4  
ii. A ppt. (dark blue would form)

Note: The reactions written above include descriptive symbols. This is simply a teaching aid and may be useful when "discussing" the answers. Remember—descriptive symbols are not necessary and are not graded on the AP Examination.