

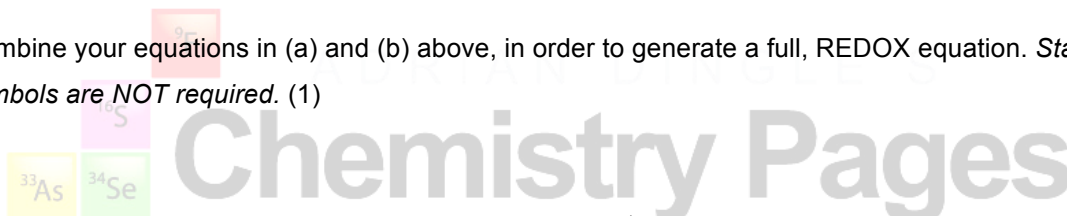
AP QUIZ 03B: Types of Chemical Reaction

Name: \_\_\_\_\_

**Question 1**

Bromine,  $\text{Br}_2$ , will react with  $\text{IO}_3^-$  ions to produce bromide ions,  $\text{Br}^-$  and  $\text{IO}_4^-$  ions as products.

- (a) Write the balanced half-equation that summarizes the change in bromine. *State symbols are NOT required.* (2)
- (b) Write the balanced half-equation that summarizes the change in  $\text{IO}_3^-$  ions. *State symbols are NOT required.* (3)
- (c) Combine your equations in (a) and (b) above, in order to generate a full, REDOX equation. *State symbols are NOT required.* (1)
- (d) A solution of sodium iodate (molar mass =  $197.89 \text{ g mol}^{-1}$ ) is made by adding 5.60 g of the solid to a 250 mL volumetric flask, and making up to the mark. 25.0 mL portions of this solution are pipetted into an Erlenmeyer flask, and are titrated against a solution of bromine, with an average of 14.3 mL of the bromine solution being required for complete reaction. Calculate the concentration, in  $\text{mol L}^{-1}$ , of the bromine solution. (4)

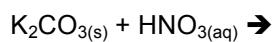


**Question 2**

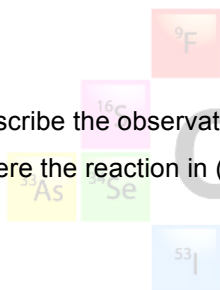
(a) Write the full chemical equation that represents the neutralization reaction between solutions of potassium hydroxide and oxalic acid,  $\text{H}_2\text{C}_2\text{O}_4$ . *Use state symbols.* (2)

(b) Write the net ionic equation for the reaction in (a). *Use state symbols.* (2)

(c) Complete the equation below by adding products, *and* then balancing. *Use state symbols.* (3)



(d) Describe the observation that is made when a lighted splint is introduced to the mouth of a test tube, where the reaction in (c) is occurring. (1)



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