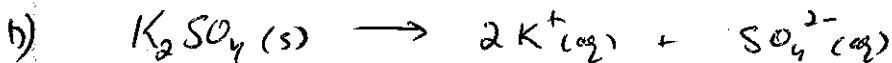
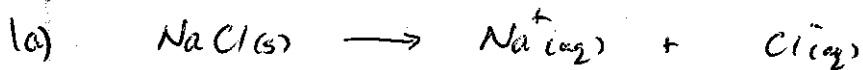


SCH 3U REVIEW

SOLUTIONS

p. 811

①



$$2a) \quad C = \frac{0.174 \text{ mol}}{0.250 \text{ L}} \\ = 0.696 \text{ mol/L}$$

$$b) \quad n(\text{NaOH}) = \frac{60.0 \text{ g}}{40.0 \text{ g/mol}} \\ = 1.50 \text{ mol}$$

$$C = \frac{1.50 \text{ mol}}{0.750 \text{ L}} \\ = 2.00 \text{ mol/L}$$

$$3 \quad V = \frac{0.09 \text{ mol}}{0.36 \text{ mol/L}} \\ = 0.25 \text{ L} \\ (= 250 \text{ mL})$$

$$4 \quad n = (0.500 \text{ L})(0.12 \text{ mol/L}) \\ = 0.060 \text{ mol}$$

$$\text{mass} = (0.060 \text{ mol})(106 \text{ g/mol}) \\ = 6.36 \text{ g Na}_2\text{CO}_3$$

$$6 \quad n = \frac{13.8 \text{ g KHCO}_3}{100.12 \text{ g/mol}} \\ = 0.138 \text{ mol}$$

$$C = \frac{0.138 \text{ mol}}{0.354 \text{ L}} \\ = 0.389 \text{ mol/L}$$

$$10 \quad C_1 V_1 = C_2 V_2 \\ (11.6 \text{ mol/L})(15.0 \text{ mL}) = C_2 (500.0 \text{ mL}) \\ C_2 = 0.348 \text{ mol/L}$$

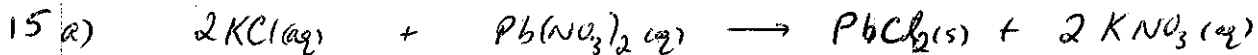
(2)

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$$C_1 V_1 = C_2 V_2$$

$$(17.8 \text{ mol/L}) V_1 = (0.215 \text{ mol/L})(2.00 \text{ L})$$

$$V_1 = 0.024 \text{ L} \quad (24 \text{ mL})$$



$$\text{b)} \quad n(\text{PbCl}_2) = \frac{0.075 \text{ g}}{278.1 \text{ g/mol}}$$

$$= 0.000270 \text{ mol}$$

$$(2.70 \times 10^{-4} \text{ mol})$$

$$\text{c)} \quad \frac{2 \text{ mol KCl}}{1 \text{ mol PbCl}_2} = \frac{x \text{ mol KCl}}{0.000270}$$

$$x = 0.000539 \text{ mol KCl}$$

$$(5.39 \times 10^{-4} \text{ mol KCl})$$

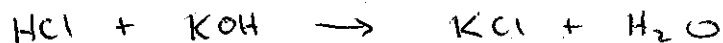
$$\text{d)} \quad C = \frac{n}{V} = \frac{0.000539 \text{ mol KCl}}{0.005 \text{ L}}$$

$$= 0.108 \text{ mol/L}$$

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- a) pH = 2.0
 b) pH = 10.3
 c) pH = 2.26
 d) pH = 9.14

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$$C_a V_a = C_b V_b$$

$$(0.125 \text{ mol/L})(25.0 \text{ mL}) = C_b (21.4 \text{ mL})$$

$$C_b = 0.146 \text{ mol/L} \quad \text{KOH}$$