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Chemistry\_Questions\_0064

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1. **017 Chapter #010**

Calculate the pH of a solution that is 0.410 M in HOCl and 0.050 M in NaOCl. [ $K_a(\text{HOCl}) = 3.2 \times 10^{-8}$ ]

Student Response
a. 0.39
b. 3.94
c. 6.58
d. 7.49
e. 8.40

2. **017 Chapter #074**

Which will precipitate first when  $\text{AgNO}_3$  is added to a solution containing  $\text{Br}^-$ ,  $\text{Cl}^-$ , and  $\text{I}^-$  ions?

Student Response
a. AgBr
b. AgCl
c. AgI
d. They have equal solubilities and will precipitate at the same time.

3. **017 Chapter #001**

What happens to the solution if sodium acetate is added to a solution of acetic acid?

Student Response
a. equilibrium shifts to the right
b. increase in percent ionization of acetic acid
c. less of hydrogen ion is consumed
d. an increased concentration of acetate ions
e. less of the acetate ion is consumed

4. **017 Chapter #065**

Will a precipitate of magnesium fluoride form when 300.0 mL of  $1.1 \times 10^{-3}$  M  $\text{MgCl}_2$  are added to 500.0

mL of  $1.2 \times 10^{-3}$  M NaF? ( $K_{sp}(\text{MgF}_2) = 6.9 \times 10^{-9}$ )

Student Response

a. Yes, Q is greater than  $K_{sp}$ .

b. No, Q is less than  $K_{sp}$ .

c. No,  $Q = K_{sp}$ .

d. Yes, Q is less than  $K_{sp}$ .

5. **017 Chapter #051**

For  $\text{PbCl}_2$  ( $K_{sp} = 2.4 \times 10^{-4}$ ), will a precipitate of  $\text{PbCl}_2$  form when 0.10 L of  $3.0 \times 10^{-2}$  M  $\text{Pb}(\text{NO}_3)_2$  is added to 400 mL of  $9.0 \times 10^{-2}$  M NaCl?

Student Response

a. yes, because Q .is greater than  $K_{sp}$

b. no, because Q is less than  $K_{sp}$

c. no, because  $Q = K_{sp}$

d. yes, because Q is less than  $K_{sp}$

6. **017 Chapter #060**

Calculate the solubility of silver oxalate,  $\text{Ag}_2\text{C}_2\text{O}_4$ , in pure water.  $K_{sp} = 1.0 \times 10^{-11}$

Student Response

a.  $1.4 \times 10^{-4}$  M

b.  $8.2 \times 10^{-5}$  M

c.  $5.4 \times 10^{-5}$  M

d.  $3.2 \times 10^{-6}$  M

e.  $2.5 \times 10^{-12}$  M

7. **017 Chapter #043**

A 25.0-mL sample of 1.00 M  $\text{NH}_3$  is titrated with 0.15 M HCl. What is the pH of the solution after 15.00 mL of acid have been added to the ammonia solution?  $K_b = 1.8 \times 10^{-5}$

Student Response

a. 10.26

b. 9.30

c. 9.21

d. 8.30

e. 8.21

**8. 017 Chapter #080**

Increasing the concentrations of the components of a buffer solution will increase the buffer range.

Student  
Response

a. TRUE

b. FALSE

**9. 017 Chapter #033**

A 20.0-mL sample of 0.25 M  $\text{HNO}_3$  is titrated with 0.15 M Na OH. What is the pH of the solution after 30.0 mL of NaOH have been added to the acid?

Student Response

a. 2.00

b. 1.60

c. 1.05

d. 1.00

e. None of these choices is correct.

**10. 017 Chapter #030**

What is the pH at the equivalence point in the titration of 100 mL of 0.10 M HCl with 0.10 M NaOH?

Student  
Response

a. 1.0

b. 6.0

c. 7.0

d. 8.0

e. 13.0