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1. 018 Chapter #049

A 0.15 M solution of chloroacetic acid has a pH of 1.86. What is the value of K_a for this acid?

Student Response	Value	Correct Answer	Feedback
a. 7.2×10^1			
b. 0.16			
c. 0.099			
d. 0.0014			
e. 0.00027			

Score: 5/5

2. 018 Chapter #006

The substance NaNO_3 is considered

Student Response	Value	Correct Answer	Feedback
a. a weak Arrhenius acid.			
b. a weak Arrhenius base.			
c. a strong Arrhenius acid.			
d. a strong Arrhenius base.			
e. a neutral compound.			

Score: 5/5

3. 018 Chapter #012

The substance HClO_4 is considered

Student Response	Value	Correct Answer	Feedback
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- a. a weak acid.
- b. a weak base.
- c. a strong acid.
- d. a strong base.
- e. a neutral compound.

Score: 5/5

4. 018 Chapter #022

Which of the following acids has the lowest pH?

Student Response	Value	Correct Answer	Feedback
a. 0.1 M HBO, $pK_a = 2.43$			
b. 0.1 M HA, $pK_a = 4.55$			
c. 0.1 M HMO, $pK_a = 8.23$			
d. 0.1 M HST, $pK_a = 11.89$			
e. pure water			

Score: 5/5

5. 017 Chapter #050

Methyl red is a common acid-base indicator. It has a K_a equal to 6.3×10^{-6} . Its un-ionized form is red and its anionic form is yellow. What color would a methyl red solution have at $pH = 7.8$?

Student Response	Value	Correct Answer	Feedback
a. green			
b. red			
c. blue			
d. yellow			
e. violet			

Score: 5/5

6. 017 Chapter #011

Calculate the pH of a buffer solution prepared by dissolving 0.20 mole of sodium cyanate (NaCNO) and 1.0 mole of cyanic acid (HCNO) in enough water to make 1.0 liter of solution. [$K_a(\text{HCNO}) = 2.0 \times 10^{-4}$]

Student Response	Value	Correct Answer	Feedback
a. 3.0			
b. 3.7			
c. 4.4			
d. 5.0			

Score: 5/5

7. 017 Chapter #075

What is the name of the principle of selective precipitation used to identify the types of ions present in a solution?

Student Response	Value	Correct Answer	Feedback
a. ionization			
b. selective ion precipitation			
c. selective ion typing			
d. limited precipitation			
e. qualitative analysis			

Score: 5/5

8. 018 Chapter #029

What is the pH of a 0.0035 M KOH solution?

Student Response	Value	Correct Answer	Feedback
a. 2.46			
b. 5.65			
c. 8.35			
d. 11.54			
e. None of these choices is correct.			

Score: 5/5

9. **018 Chapter #058**

What is the pH of a 0.050 M triethylamine, $(\text{C}_2\text{H}_5)_3\text{N}$, solution?
 K_b for triethylamine is 5.3×10^{-4} .

Student Response	Value	Correct Answer	Feedback
a. 11.69			
b. 8.68			
c. 5.32			
d. 2.31			
e. < 2.0			

Score: 5/5

10
10. **018 Chapter #002**

The substance HOBr is considered

Student Response	Value	Correct Answer	Feedback
a. a weak Arrhenius acid.			
b. a weak Arrhenius base.			
c. a strong Arrhenius acid.			
d. a strong Arrhenius base.			
e. a neutral compound.			

Score: 5/5

11
11. **017 Chapter #002**

What is the effect on equilibrium when sodium formate is added to a solution of formic acid?

Student Response	Value	Correct Answer	Feedback
a. no change in the equilibrium			
b. equilibrium shifts to the right			
c. more information is needed to answer the question			
d. equilibrium shifts to the left			

Score: 5/5

12

018 Chapter #071

Ammonium chloride is used as an electrolyte in dry cells. Which of the following statements about a 0.10 M solution of NH_4Cl , is correct?

Student Response	Value	Correct Answer	Feedback
a. The solution is weakly basic.			
b. The solution is strongly basic.			
c. The solution is neutral.			
d. The solution is acidic.			
e. The values for K_a and K_b for the species in solution must be known before a prediction can be made.			

Score: 5/5

13

017 Chapter #044

The indicator propyl red has $K_a = 3.3 \times 10^{-6}$. What would be the approximate pH range over which it would change color?

Student Response	Value	Correct Answer	Feedback
a. 3.5-5.5			
b. 4.5-6.5			
c. 5.5-7.5			

- d. 6.5-8.5
-
- e. None of these choices is correct.
-

14
• **018 Chapter #092**

It is not possible to have a pH lying outside the range 0 to 14.

Student Response	Value	Correct Answer	Feedback
a. TRUE			
b. FALSE			

Score: 5/5

15
• **017 Chapter #081**

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

Student Response	Value	Correct Answer	Feedback
a. TRUE			
b. FALSE			

Score: 5/5

16
• **017 Chapter #061**

A lab technician adds 0.015 mol of KOH to 1.00 L of 0.0010 M $\text{Ca}(\text{NO}_3)_2$. $K_{\text{sp}} = 6.5 \times 10^{-6}$ for $\text{Ca}(\text{OH})_2$. Which of the following statements is correct?

Student Response	Value	Correct Answer	Feedback
a. Calcium hydroxide precipitates until the solution is saturated.			
b. The solution is unsaturated and no precipitate forms.			
c. The concentration of calcium ions is reduced by the addition of the hydroxide ions.			
d. One must know K_{sp} for calcium nitrate to make meaningful predictions on this			

system.

- e. The presence of KOH will raise the solubility of $\text{Ca}(\text{NO}_3)_2$.

Score: 5/5

17

. 017 Chapter #031

Which of the following is correct for the equivalence point in an acid-base titration?

Student Response	Value	Correct Answer	Feedback
a. The pH is at its highest value for any reaction.			
b. The amounts of acid and base combined are in a stoichiometric ratio at the equivalence point in an acid-base titration.			
c. The pH is 7.0.			
d. All of the choices are correct.			
e. None of the choices is correct.			

Score: 5/5

18

. 017 Chapter #066

Will a precipitate (ppt) form when 300.0 mL of 5.0×10^{-5} M AgNO_3 are added to 200.0 mL of 2.5×10^{-7} M NaBr ? Answer *yes* or *no*, and identify the precipitate if there is one.

Student Response	Value	Correct Answer	Feedback
a. Yes, the ppt is $\text{AgNO}_3(\text{s})$.			
b. Yes, the ppt is $\text{AgBr}(\text{s})$.			
c. Yes, the ppt is $\text{NaBr}(\text{s})$.			
d. Yes, the ppt is $\text{NaNO}_3(\text{s})$.			
e. No, a precipitate will not form.			

Score: 5/5

19

. 017 Chapter #022

An acetic acid buffer containing 0.50 M CH_3COOH and 0.50 M CH_3COONa has a pH of 4.74. What will the pH be after 0.0020 mol of HCl has been added to 100.0 mL of the buffer?

Student Response	Value	Correct Answer	Feedback
a. 4.77			

b. 4.71

c. 4.68

d. 4.62

e. None of these choices
is correct.

Score:

5/5

20

018 Chapter #038

The hydrated Al^{3+} ion, $\text{Al}(\text{H}_2\text{O})_6^{3+}$, is a weak acid in water. What are the products of its reaction with H_2O ?
 $\text{Al}(\text{H}_2\text{O})_6^{3+}(\text{aq}) + \text{H}_2\text{O}(\text{l}) \rightarrow ?$

Student Response	Value	Correct Answer	Feedback
a. $\text{Al}(\text{H}_2\text{O})_5\text{OH}^{2+}(\text{aq})$ + $\text{H}_3\text{O}^+(\text{aq})$			
b. $\text{Al}(\text{H}_2\text{O})_6\text{H}^{4+}(\text{aq})$ + $\text{OH}^-(\text{aq})$			
c. $\text{Al}(\text{H}_2\text{O})_5^{3+}(\text{aq}) +$ $2\text{H}_2\text{O}(\text{l})$			
d. $\text{Al}(\text{H}_2\text{O})_6\text{OH}^{2+}(\text{aq})$ + $\text{H}_3\text{O}^+(\text{aq})$			
e. $\text{Al}(\text{H}_2\text{O})_6^{2+}(\text{aq}) +$ $\text{H}_3\text{O}^+(\text{aq})$			

Score: 5/5