

Name: \_\_\_\_\_ Off. Class: \_\_\_\_\_ Per: \_\_\_\_\_ Date: \_\_\_\_\_

Teacher: \_\_\_\_\_ Acid/Base Short Response Practice Chemistry

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Base your answers to questions 1 and 2 on the information below and on your knowledge of chemistry.

Vinegar is a commercial form of acetic acid,  $\text{HC}_2\text{H}_3\text{O}_2(\text{aq})$ . One sample vinegar has a pH value of 2.4.

1. Explain, in terms of particles, why  $\text{HC}_2\text{H}_3\text{O}_2(\text{aq})$  can conduct an electric current.

2. State the color of bromthymol blue indicator in a sample of the commercial vinegar.

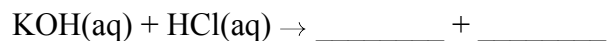
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Base your answers to questions 3 and 4 on the information below.

In a titration, 20.0 milliliters of 0.15 M  $\text{HCl}(\text{aq})$  is exactly neutralized by 18.0 milliliters of  $\text{KOH}(\text{aq})$ .

3. Compare the number of moles of  $\text{H}^+(\text{aq})$  ions to the number of moles of  $\text{OH}^-(\text{aq})$  ions in the titration mixture when the  $\text{HCl}(\text{aq})$  is exactly neutralized by the  $\text{KOH}(\text{aq})$ .

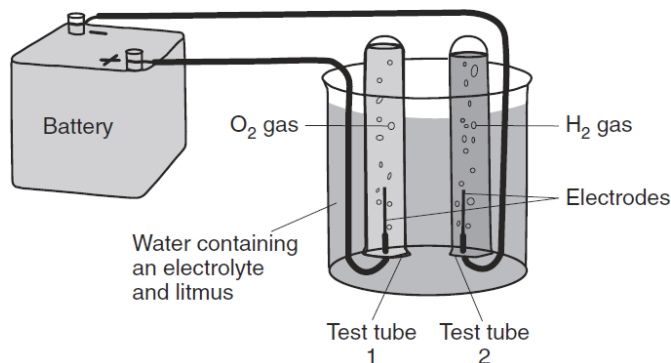
4. Complete the equation below for the neutralization reaction by writing the formula of *each* product.



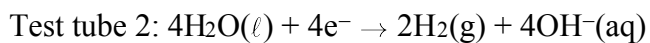
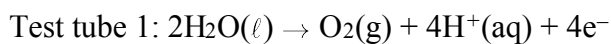


8. Base your answer to the following question on the information below.

The diagram below shows a system in which water is being decomposed into oxygen gas and hydrogen gas. Litmus is used as an indicator in the water. The litmus turns red in test tube 1 and blue in test tube 2.



The oxidation and reduction occurring in the test tubes are represented by the balanced equations below.



Explain, in terms of the products formed in test tube 2, why litmus turns blue in test tube 2.

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Base your answers to questions 9 through 11 on the information below.

A student used blue litmus paper and phenolphthalein paper as indicators to test the pH of distilled water and five aqueous household solutions. Then the student used a pH meter to measure the pH of the distilled water and each solution. The results of the student's work are recorded in the table below.

**Testing Results**

Liquid Tested	Color of Blue Litmus Paper	Color of Phenolphthalein Paper	Measured pH Value Using a pH Meter
2% milk	blue	colorless	6.4
distilled water	blue	colorless	7.0
household ammonia	blue	pink	11.5
lemon juice	red	colorless	2.3
tomato juice	red	colorless	4.3
vinegar	red	colorless	3.3

9. Based on the measured pH values, identify the liquid tested that is 10 times more acidic than vinegar.
10. Explain, using the reference table, in terms of the pH range for color change why litmus is *not* appropriate to differentiate the acidity levels of tomato juice and vinegar.
11. Identify the liquid tested that has the *lowest* hydronium ion concentration.
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