

Grade 10 Unit 5 Quiz: Acids and Bases

Models, pH, neutralization, buffers, and evidence limits

Name: _____

Date: _____

Time: 30 minutes. Calculator permitted. All solution cards are fictional paper models; do not infer health or consumer-use claims.

1. Which is a Brønsted–Lowry acid? [1 pts]
A. electron-pair donor
B. proton donor
C. hydroxide ion only
D. neutral salt always
2. Calculate $[\text{H}_3\text{O}^+]$ for $\text{pH} = 2.50$. [2 pts]

3. A solution has $[\text{OH}^-] = 1.0 \times 10^{-4} \text{ M}$ at 25°C . Calculate pOH and pH . [2 pts]

4. Compare a 0.10 M strong acid and a 0.10 M weak acid: which has greater hydronium concentration, and why? [2 pts]

5. 25.0 mL of 0.100 M HCl is neutralized by 0.100 M NaOH. Calculate moles of HCl and volume of NaOH needed. [3 pts]

6. A titration curve has its steepest pH change near the equivalence region. What measurement pattern supports locating that region, and what does not prove an endpoint is perfectly exact? [2 pts]

-
-
7. A buffer contains weak acid HA and conjugate base A⁻. Predict the immediate direction of change after a small added amount of HCl, using particle reasoning. [2 pts]
-
-

8. A label says pH 7 proves a solution is safe to touch and safe to drink. Identify two evidence-boundary problems. [2 pts]
-
-