

Solutions

Each answer shows the steps, then the **result**.

2.1

- A weak acid and its conjugate base (in comparable amounts)

2.2

- The conjugate base

2.3

- No — HCl is a strong acid with no weak-acid reservoir and Cl^- is not a base, so it cannot resist pH change both ways

3.1 A

- its conjugate base

3.2

(a)

- $\text{CH}_3\text{COOH} + \text{OH}^- \rightarrow \text{CH}_3\text{COO}^- + \text{H}_2\text{O}$

(b)

- The weak acid neutralizes the added base, so free OH^- is consumed and the pH stays nearly constant

3.3

(i)

- is a buffer — NH_3 (weak base) with its conjugate acid NH_4^+

(ii)

- is not — NaOH is a strong base with no conjugate weak-acid partner