# CH1011 Tutorial 9

**Name:**

1. Calculate the hydrogen ion concentration, pH and pOH for a 0.100 M solution of hypochlorous acid (HClO, $pK_a = 7.52$).

2. Define the **working range** of an indicator and the **equivalence point** of a titration.
How should a suitable indicator for a titration between an acid and a base be chosen?

3. What is the function of a **buffer solution** and how do the various components of a buffer contribute to this function. Illustrate your answer using carbonic acid ($H_2CO_3$; $pK_{a1} = 6.36$).

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4. **Acid rain** is a minor problem in some regions of Australia but a major problem in several countries internationally.
   - What are the major components of acid rain?
   - How does acid rain form?

5. **Reverse osmosis** is widely used in obtaining fresh drinking water from saline waters.
   - Explain what you understand by the terms **osmosis**, **osmotic pressure** and **reverse osmosis**.