

**Name:**

1. Draw a **molecular structure** of **phosphoric acid**.
  - What **type of bonding** is present in this molecule.
  - What is the acid/base chemistry of the phosphoric acid system important from a biochemical perspective?
  
2. Write down the **equilibrium constant** ( $K_c$ ) for the dissociation of formic acid to form the formate ion and  $H^+$ .
  
3. What is the difference between a **hydrophobic** and a **hydrophilic organic molecule**? Provide examples to illustrate your answer.

4. Calculate the molarity of a **sucrose** solution prepared from 102g of sucrose and 253cm<sup>3</sup> of water.
5. Why is a **catalyst** important in a chemical reaction?
6. Calculate the **pH** of a 0.014M HCl solution. Is this acidic, neutral or basic – explain why?
7. Draw the **un-ionized** and **zwitterionic** forms of serine. In which form would serine be present in solution at pH 10.0?