1. What is the “molecular unit of currency”? Explain how energy is released.
2. What is pmf? Describe the two components that contribute to the pmf.
3. Sketch a molecular rotary motor and describe its operation.
4. Describe how bacteria swim.
5. Explain with the aid of diagrams the molecular mechanism of muscle contraction by Actin and Myosin.
6. Give the definition of pH and calculate the pH of a 1mM, 1pM and a 0.1μM concentration solution of hydrochloric acid.
7. Calculate the pH of a solution of NaOH of concentration 0.1mM, 0.1nM.
8. A 1M solution of acetic acid (pKa=4.75) has a pH of 2.4. What percentage of acetic acid molecules are dissociated?
9. Define antibody and ligand, and write down the equation for dissociation constant, give a value and give an example of a strong and weak protein-ligand interaction.
10. What is antigen; immunoglobulin, receptor; epitope; leukocyte; protease; polyclonal; monoclonal
11. Sketch a diagram of an antibody and identify the key components.
12. Describe the process of phagocytosis.
13. What is a hapten?