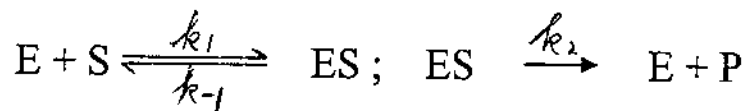


1. (10%) Please describe the eukaryotic cells in detail.
2. (15%) Describe and explain the following terms.  
(1) Bronsted-Lowry acid, (2) Arrhenius acid, (3) buffer solution
3. (15%) Please describe the pathway of producing protein form DNA.
4. (20%) Please describe the pathway of **Glycolysis** and calculate how many molecules of ATP can be produced?
5. (20%) Illustrate two methods to separate proteins (explain in detail).
6. (20%) An enzymatic reaction is represented as



The concentration of enzyme-substrate complex [ES] is assumed to maintain at a constant value throughout the reaction. Please derive an equation to express the reaction rate.