Shahjalal University of Science & Technology, Sylhet
Department of Biochemistry and Molecular Biology

B. Sc. (Hons) 2nd Year 1st Semester Final Examination, 2013

Course No. : BMB -221 Course Title: Enzymology- I

Credit: 2 Total marks: 70 Time: 2 hours

Instructions:

- Number in the right side indicates the marks of the question.
- Marks for each question are same.
- Answer any two (2) questions from each Part (A and B).

Part –A

1. a) Define the following terms (any three): 2X3 6.0
   i) Apo enzyme
   ii) Allosteric regulation
   iii) Specific activity
   iv) Turnover number
   b) Describe the oxidoreductases and tranferases enzyme with specific example. 4.5
   c) Why enzymes are so large? Write down some common features of active sites. 7.0

2. a) Deduce the Michaelis-Menten equation for a single substrate enzyme reaction. 8.0
   b) Describe the linear form of Michaelis-Menten equation. 4.5
   c) Discuss the Ping-Pong Mechanism with example. 5.0

3. a) Describe the acid-base catalysis in glucose mutarotation. 5.0
   b) What is ribonuclease? Explain the role of chymotrypsin enzyme in covalent catalysis. 7.0
   c) Discuss the effect of pH & temperature on the catalytic activity of enzyme. 5.5

Part-B

4. a) Write down the differences among the competitive, non-competitive, and uncompetitive inhibitor. 6.0
   b) Why allosteric enzymes divergers from Michaleis-Menten behavior? 7.0
   c) Write short notes on regulation of enzyme activity. 4.5

5. a) Enzymes accelerate reaction rate but do not affect equilibria-discuss. 6.0
   b) Discuss enzyme specifity with suitable examples. 5.0
   c) Describe the two methods of discontinuous assay. 3.5
   d) Most of the enzymes are protein but not all the protein are enzyme - justify. 3.0

6. a) What do you mean by allosteric enzyme? Write down the properties of an allosteric enzyme. 1+5 6.0
   b) Define regulatory enzyme. What is the importance of regulatory enzymes? 6.0
   c) What is binding energy? How does an enzyme use binding energy to lower the activation energy for a reaction? 5.5