Shahjalal university of Science & Technology, Sylhet
Department of BIOCHEMISTRY AND MOLECULAR BIOLOGY
B. Sc. (Hons) 2nd year 2nd Semester Examination 2012
Course No. : **BMB-224** Course title: **Enzymology-II**
Credit: **2** Total marks: **70** Time: **2** hours

Answere any two question from each part.

PART-A

1. (a) List the four major regulatory mechanisms that control enzyme activity and give examples of each. 6
   (b) What is allosteric enzyme? Explain kinetics of Allosteric Enzyme. 6
   (c) What do you mean by K and M enzyme? Define these terms with graph. 5.5

2. (a)Describe the reaction catalyzed by aspartate transcarbamoylase (ATCase), the regulation of ATCase by CTP and ATP,and the biological significance of this regulation. 8
   (b) Outline the effects of heterotropic and homotropic allosteric interaction on the equilibrium between the T and R forms of ATCase. 6
   (c) Differentiate between concerted and sequential mechanisms of allosteric regulation. 3.5

3. (a) Write the basic reactions catalyzed by protein kinases and protein Phosphatase. 5.5
   (b) How the activity of glycogen phosphorylase is regulated by the activity of another two enzymes. 7
   (c) Write short notes on adenylylation and deadenylylation. 5

PART-B

4. (a)What do you mean by mechanism of action? Write down the mechanism of chymotrypsin catalyzed reaction. 8
   (b) What is zymogen? Give examples of enzymes and proteins that are derived from zymogens and the biological processes they mediate. 6
   (c)Write short notes on membrane bound enzymes. 3.5

5. (a) Define the term high energy compound. Describe the role of ATP as the major energy-coupling agent in metabolism. 6
   (b)State the significance of the free-energy change (ΔG) of reactions and the relationship of ΔG to $\Delta G^{\circ\prime}$, the equilibrium constant, and the concentration of reactants and products of the reaction. 8
   (c) What do you mean by novel en[illegible]? Explain these terms with specific examples. 3.5

6. (a) Write down the structure of three coenzymes and give their specific reaction. 9
   (b)What is isozyme?Describe the different isozymes of hexokinase with their characteristic and biological importance. 6
   (c)Write down the tissue distribution of different isozymes of Lactate dehydrogenase. 2.5