

Shahjalal University of Science and Technology
Department of Biochemistry and Molecular Biology
BMB 224 Enzymology II Midterm –I
Full marks 6.0 Time 1 hr

1. Justify if the statements are **true or false**. If false write the correct statement

8*0.1=0.8

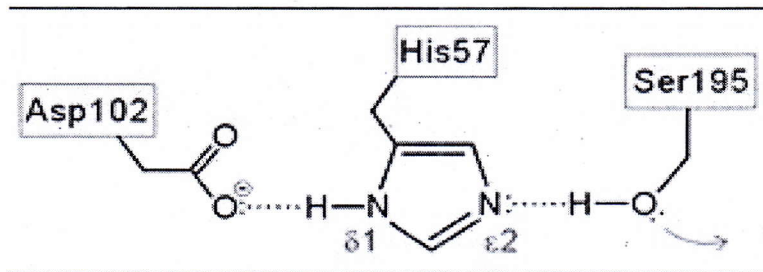
- I. Lactase deficiency can causes lactose intolerance in human
- II. Activity of luciferase enzymes help fireflies to emit yellow light
- III. DNA gyrase unwinds double strand DNA
- IV. Phosphofructokinase is a key regulatory enzyme in Pentose Phosphate pathway
- V. Hexokinase is a highly specific enzyme that acts on glucose only
- VI. Trypsin is activated by adenylation
- VII. Anabolic reactions continues in stress condition and hence enzymes of anabolic pathway activated by phosphorylation in stress condition
- VIII. Glucose 6 phosphatase is predominantly found in kidney

2. During vigorous exercise lactic acid accumulates in muscle and hence causes pain

0.2+0.5+0.5=1.2

- a. Which enzyme works to produce muscle lactic acid?
- b. How the pain is relieved metabolically?
- c. What is the metabolic importance of this lactic acid formation?

3.



The above figure shows the catalytic triad of chymotrypsin. Explain why this particular orientation is important for its function?

1.0

4. How can you monitor myocardial infarction by analyzing Lactate dehydrogenase isoenzymes?

0.5

5. While Hexokinase is a housekeeping enzyme, Glucokinase activates and participates in catalysis only particular period, like after taking meal. Explain how this differential activation is maintained?

0.5

6. What is your favorite enzyme? Write **any** four of that enzyme-

0.5*4 = 2.0

- a. activation b. isoenzymes c. mechanism of catalysis d. metabolic importance
- e. deficiency associated problems f. clinical importance