

CLS 431 - midterm exam

Name:..... Univ. No#.....

Question 1 (10 marks): Choose the best answer from the options underneath each question below:

1- Which of the following statements is true about enzymes or their function:

- A. Enzymes do not alter the overall change in free energy for a reaction
- B. Are -mostly- proteins whose three-dimensional form is key to their function
- C. Enzymes speed up reactions by lowering activation energy
- D. All of the above

2- The vitamin riboflavin is part of the _____ molecule

- A. pyrophosphatase
- B. catalase
- C. FAD
- D. NAD

3- Which CK isozyme is elevated in myocardial infarction

- A. CK-BB
- B. CK-MB
- C. CK-HM
- D. CK-MM

4- Proteolytic cleavage of peptide bonds in zymogens will

- A. Inhibit the enzyme
- B. Activate the enzyme
- C. Denature the enzyme
- D. Decrease the optimal pH of the enzyme

5- The most predominant isoenzyme of LDH in serum is

- A. LDH-2
- B. LDH-4
- C. LDH-5
- D. None of the above

6- A likely consequence of haemolytic anaemia could be the increase of isoenzyme

- A. LDH-1
- B. LDH-3
- C. LDH-5
- D. B & C

7- The optimal temperature for human enzymes that are actively involved in metabolism is

- A. 25°C
- B. 30°C
- C. 60°C
- D. 37°C

8- Vitamins are important in metabolism because they are

- A. Inorganic cofactors
- B. Coenzymes
- C. Long term regulators
- D. Zymogens

- 9- The rate of enzyme synthesis (transcription/translation from genes to protein) will control
- A. The enzyme activity
 - B. The enzyme concentration
 - C. The enzyme allostery
 - D. The enzyme inhibition
- 10- Methotrexate is on the list of the World Health Organization (WHO) list of the most important drugs needed in a basic health system. Which statement below is false regarding this medication?
- A. It is a chemotherapeutic prescribed to treat cancer
 - B. It is a competitive inhibitor of dihydrofolate reductase
 - C. It promotes cell proliferation and growth
 - D. It is similar in its chemical structure to dihydrofolic acid

Question 2 (6 marks):

- a) From what you have learned in enzyme classification, right the major EC class where each of the following enzymes belong

Enzyme	Class
Lactate dehydrogenase (LDH)	
Alanine transaminase (ALT)	
Creatine kinase (CK)	
Amylase (AMY)	

- b) In the graph, No.1 shows a “normal” enzymatic reaction, whereas the enzyme is bound to a competitive inhibitor in No.2, and a non-competitive inhibitor in No.3.

What are the major differences between these two types of inhibitors considering the graph below? You may plot the key parameters for each reaction on the graph to help guide your answer

