

Unit 7 - Week 5

Course outline

How does an NPTEL online course work?

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Week 5

- Lecture 09 : Enzymes - III
- Lecture 10 : Enzyme Mechanisms - I
- Lecture material of Week 5
- Quiz : Week 5 Assignment 5
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Week 5 Assignment 5

The due date for submitting this assignment has passed.
As per our records you have not submitted this assignment.

Due on 2020-03-04, 23:59 IST.

1) Which one of the following statements is true with reference to enzymes? 1 point

- a) Apoenzyme = Holoenzyme + Coenzyme
- b) Holoenzyme = Apoenzyme + Coenzyme
- c) Coenzyme = Apoenzyme + Holoenzyme
- d) Holoenzyme = Apoenzyme - Coenzyme

- a)
- b)
- c)
- d)

No, the answer is incorrect.
Score: 0

Accepted Answers:
b)

2) You are working at a company evaluating compounds with the potential to become new medications. You evaluate several inhibitors of an enzyme you are studying and get the data below corresponding to the inhibition constant (K_i). Which would be the most promising lead compound? 1 point

- a) $K_i = 4.7 \times 10^5$ M
- b) $K_i = 1.5 \times 10^8$ M
- c) $K_i = 1.5 \times 10^{-8}$ M
- d) $K_i = 4.7 \times 10^{-5}$ M

- a)
- b)
- c)
- d)

No, the answer is incorrect.
Score: 0

Accepted Answers:
c)

3) A prosthetic group of a protein is a non-protein structure that is: 1 point

- a) a ligand of the protein
- b) a part of the secondary structure of the protein
- c) a substrate of the protein
- d) permanently associated with the protein.

- a)
- b)
- c)
- d)

No, the answer is incorrect.
Score: 0

Accepted Answers:
d)

4) Enzymes that differ in amino acid sequence but catalyze the same reaction are _____ 1 point

- a) Co-factors
- b) Co-enzymes
- c) Apo-enzymes
- d) Iso-enzymes

- a)
- b)
- c)
- d)

No, the answer is incorrect.
Score: 0

Accepted Answers:
d)

5) Carbon monoxide (CO) is toxic to humans because 1 point

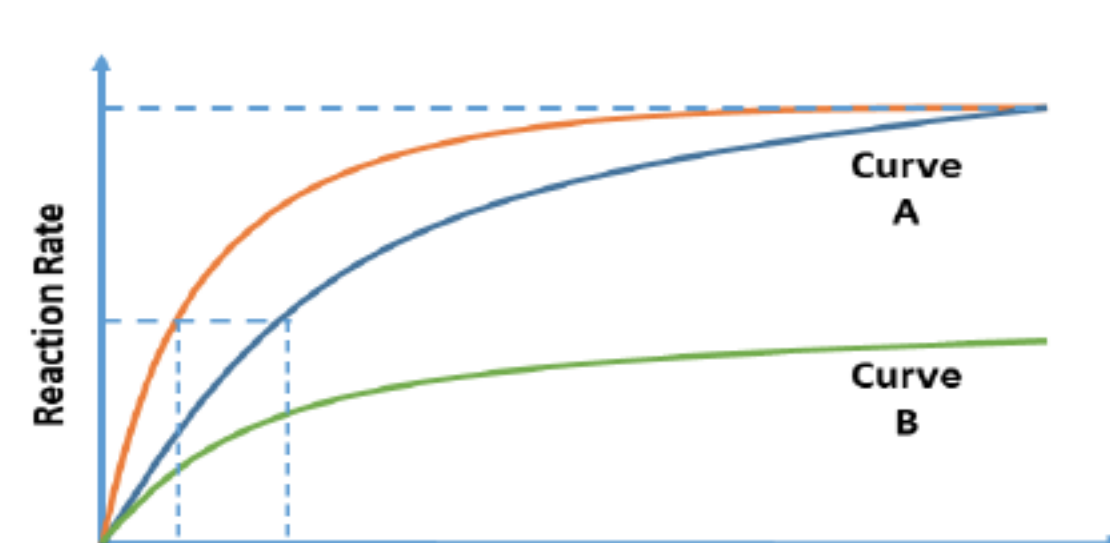
- a) it is rapidly converted to toxic CO_2 .
- b) it binds to the globin portion of hemoglobin and prevents the binding of O_2 .
- c) it binds to the Fe in hemoglobin and prevents the binding of O_2 .
- d) it binds to the heme portion of hemoglobin and causes heme to unbind from hemoglobin.

- a)
- b)
- c)
- d)

No, the answer is incorrect.
Score: 0

Accepted Answers:
c)

6) The graph below represents rate vs substrate plots for an uninhibited enzyme and the same enzyme in the presence of two different inhibitors (A and B). What statements about this data is true? 1 point



- a) Curve A represents an uncompetitive inhibitor, and Curve B represents a noncompetitive inhibitor
- b) Curve A represents an irreversible inhibitor, and Curve B represents a competitive inhibitor
- c) Curve A represents a mixed inhibitor, and Curve B represents an uncompetitive inhibitor
- d) Curve A represents a competitive inhibitor, and Curve B represents a noncompetitive inhibitor

- a)
- b)
- c)
- d)

No, the answer is incorrect.
Score: 0

Accepted Answers:
d)

7) Which one of the following statements is true? 1 point

- a) Competitive inhibition is reversible and can be overcome by increasing the concentration of the substrate.
- b) Competitive inhibition is irreversible and cannot be overcome by increasing the concentration of the substrate.
- c) Non-competitive inhibition is normally irreversible but can be overcome by increasing the concentration of the substrate.
- d) Competitive inhibition is reversible and cannot be overcome by increasing the concentration of the substrate.

- a)
- b)
- c)
- d)

No, the answer is incorrect.
Score: 0

Accepted Answers:
a)

8) Salivary amylase is an enzyme in humans that breaks down starch. The optimum pH for this reaction is 6.7. The rate of this reaction would not be affected by 1 point

- a) Maintaining the pH of the reaction at 6.7
- b) Substrate concentration
- c) Enzyme concentration
- d) Decreasing the temperature of the reaction by 5°C

- a)
- b)
- c)
- d)

No, the answer is incorrect.
Score: 0

Accepted Answers:
a)

9) When oxygen binds to a heme-containing protein, the two open coordination bonds of Fe^{2+} are occupied by: 1 point

- a) one O atom and one amino acid atom.
- b) one O_2 molecule and one amino acid atom.
- c) one O_2 molecule and one heme atom.
- d) two O atoms.

- a)
- b)
- c)
- d)

No, the answer is incorrect.
Score: 0

Accepted Answers:
b)

10) One of the enzymes involved in glycolysis, aldolase, requires Zn^{2+} for catalysis. Under conditions of zinc deficiency, when the enzyme may lack zinc, it would be referred to as the: 1 point

- a) Apoenzyme
- b) Coenzyme
- c) Holoenzyme
- d) Prosthetic group.

- a)
- b)
- c)
- d)

No, the answer is incorrect.
Score: 0

Accepted Answers:
a)

11) When $[S]=K_m$ the velocity of an enzyme catalyzed reaction is 1 point

- a) $0.1 * V_{max}$
- b) $0.5 * V_{max}$
- c) $0.9 * V_{max}$
- d) V_{max}

- a)
- b)
- c)
- d)

No, the answer is incorrect.
Score: 0

Accepted Answers:
b)

12) In the binding of oxygen to myoglobin, the relationship between the concentration of oxygen and the fraction of binding sites occupied can best be described as: 1 point

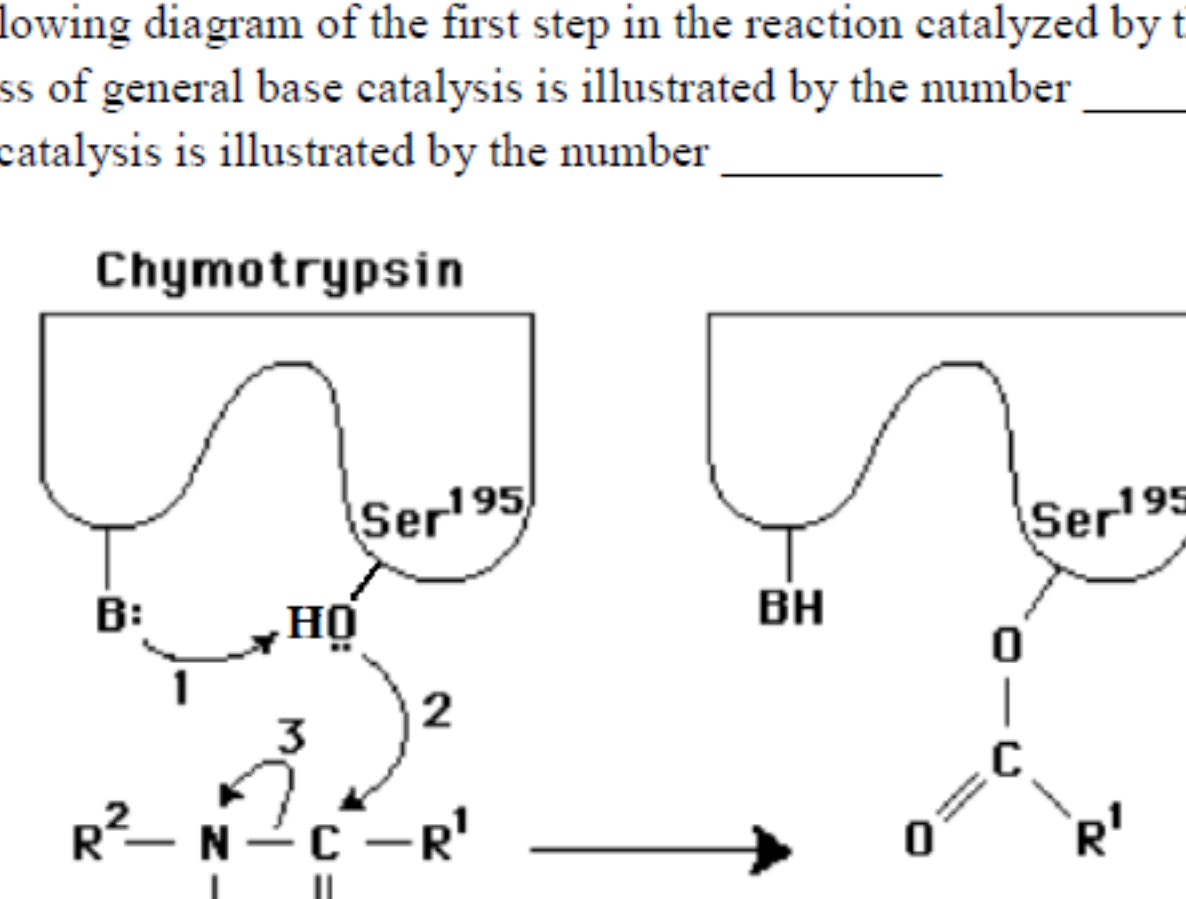
- a) hyperbolic.
- b) linear with a negative slope.
- c) linear with a positive slope
- d) sigmoidal

- a)
- b)
- c)
- d)

No, the answer is incorrect.
Score: 0

Accepted Answers:
a)

13) In the following diagram of the first step in the reaction catalyzed by the protease chymotrypsin, the process of general base catalysis is illustrated by the number _____, and the process of covalent catalysis is illustrated by the number _____ 1 point



- a) 1;2
- b) 1;3
- c) 2;3
- d) 3;2

- a)
- b)
- c)
- d)

No, the answer is incorrect.
Score: 0

Accepted Answers:
a)

14) In a plot of $1/V$ against $1/[S]$ for an enzyme-catalyzed reaction, the presence of a competitive inhibitor will alter the: 1 point

- a) curvature of the plot.
- b) intercept on the $1/[S]$ axis.
- c) intercept on the $1/V$ axis.
- d) pK of the plot

- a)
- b)
- c)
- d)

No, the answer is incorrect.
Score: 0

Accepted Answers:
b)

15) Myoglobin and the subunits of hemoglobin have: 1 point

- a) very different primary and tertiary structures.
- b) very similar primary and tertiary structures.
- c) very similar primary structures, but different tertiary structures.
- d) very similar tertiary structures, but different primary structures

- a)
- b)
- c)
- d)

No, the answer is incorrect.
Score: 0

Accepted Answers:
d)