

Unit 8 - Week 6

Course outline

How does an NPTEL online course work?

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Week 6

● Lecture 11 : Enzyme Mechanisms - II

● Lecture 12 : Myoglobin and Hemoglobin

● Lecture material of Week 6

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Week 6 Assignment 6

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

Due on 2020-03-11, 23:59 IST.

1) Choose the INCORRECT statement about the active site of an enzyme- 1 point

- a) The active site is a three-dimensional cleft
- b) The active site takes up a large part of the total volume of an enzyme
- c) Substrates are bound to enzymes by multiple weak attractions
- d) The specificity of binding depends on the precisely defined arrangements of the atoms in an active site

- a)
 b)
 c)
 d)

No, the answer is incorrect.
Score: 0

Accepted Answers:
b)

2) The catalytic triad of most Serine proteases contains Asp, His and Ser residues. Which of the following is true? 1 point

- a) The Asp residue is used in an acid catalysed attack on the peptide bond
- b) The His residue is responsible for the substrate specificity of Trypsin
- c) The Ser residue is used in a nucleophilic attack on the peptide bond
- d) The Asp residue is responsible for the substrate specificity of Trypsin

- a)
 b)
 c)
 d)

No, the answer is incorrect.
Score: 0

Accepted Answers:
c)

3) An enzyme that joins the end of two strands of nucleic acids is 1 point

- a) polymerase
- b) ligase
- c) synthetase
- d) helicase

- a)
 b)
 c)
 d)

No, the answer is incorrect.
Score: 0

Accepted Answers:
b)

4) In case of Vitamin B6 disorders of amino acid transamination takes place. Which class of enzyme catalyses these reactions? 1 point

- a) Oxidoreductases
- b) Hydrolases
- c) Ligases
- d) Transferases

- a)
 b)
 c)
 d)

No, the answer is incorrect.
Score: 0

Accepted Answers:
d)

5) Following stabilization of the transition state during lysozyme catalysis, the NAG₄ product is released after 1 point

- a) attack of a water molecule on the oxonium ion
- b) release of a water molecule from the glycosidic bond
- c) breakdown of the tetrahedral intermediate at Ser 195
- d) a major conformation changes in the enzyme

- a)
 b)
 c)
 d)

No, the answer is incorrect.
Score: 0

Accepted Answers:
a)

6) An allosteric inhibitor of an enzyme usually 1 point

- a) binds to the active site
- b) participates in feedback regulation
- c) causes the enzyme to work faster
- d) denatures the enzyme

- a)
 b)
 c)
 d)

No, the answer is incorrect.
Score: 0

Accepted Answers:
b)

7) The optimum pH for the activity of Lysozyme is 5.0. The active site of lysozyme contains a glutamic acid residue (pK_a = 5.5) and an aspartic acid residue (pK_a = 4.0). Which of the following statements is correct about the mechanism of lysozyme? 1 point

- a) The glutamic acid residue is in a more polar environment than the aspartic acid
- b) During the mechanism, an oxyanion transition state forms
- c) During the entire catalytic mechanism, the aspartic acid residue remains unprotonated
- d) The glutamic acid residue acts as a general base catalyst

- a)
 b)
 c)
 d)

No, the answer is incorrect.
Score: 0

Accepted Answers:
c)

8) Acute pancreatitis is characterised by 1 point

- a) Lack of synthesis of zymogen enzymes
- b) Continuous release of zymogen enzymes into the gut
- c) Premature activation of zymogen enzymes
- d) Inactivation of zymogen enzymes

- a)
 b)
 c)
 d)

No, the answer is incorrect.
Score: 0

Accepted Answers:
c)

9) Which out of the following is a substrate-specific enzyme? 1 point

- a) Hexokinase
- b) Thiokinase
- c) Decarboxylase
- d) Lactase

- a)
 b)
 c)
 d)

No, the answer is incorrect.
Score: 0

Accepted Answers:
d)

10) Which of the following co-enzymes takes part in the hydrogen transfer reaction in the electron transport chain? 1 point

- a) Tetrahydrofolate
- b) Methyl Cobalamin
- c) Co-enzyme Q
- d) Biotin

- a)
 b)
 c)
 d)

No, the answer is incorrect.
Score: 0

Accepted Answers:
c)

11) Group I co-enzymes participate in which of the following reactions: 1 point

- a) Oxidation-reduction
- b) Transamination
- c) Phosphorylation
- d) Dehydrogenation

- a)
 b)
 c)
 d)

No, the answer is incorrect.
Score: 0

Accepted Answers:
a)

12) Thiamine deficiency decreases cellular metabolism because 1 point

- a) Thiamine is a coenzyme for pyruvate dehydrogenase and alpha ketoglutarate dehydrogenases
- b) Activity of trans-ketolase is inhibited
- c) It is required for the process transamination
- d) It is a cofactor in oxidative reduction

- a)
 b)
 c)
 d)

No, the answer is incorrect.
Score: 0

Accepted Answers:
a)

13) The degree of inhibition α by a competitive inhibitor is obtained from 1 point

- a) measurement of V_{max}
- b) measurement of K_M
- c) measurement of the y-intercept on a Lineweaver-Burk Plot
- d) crystallographic studies

- a)
 b)
 c)
 d)

No, the answer is incorrect.
Score: 0

Accepted Answers:
b)

14) The degradation of RNA by pancreatic ribonuclease produces 1 point

- a) Nucleoside 2-Phosphates
- b) Nucleoside 5'-phosphates
- c) Oligonucleosides
- d) One Nucleoside 3'-phosphate and an oligonucleotide

- a)
 b)
 c)
 d)

No, the answer is incorrect.
Score: 0

Accepted Answers:
d)

15) If chymotrypsin molecule undergoes a ser-195-ala mutation then: 1 point

- a) Chymotrypsin will not bind the substrate
- b) Chymotrypsin will bind the substrate as well as cause cleavage
- c) Chymotrypsin will bind the substrate but will not cause cleavage
- d) No affect will be observed

- a)
 b)
 c)
 d)

No, the answer is incorrect.
Score: 0

Accepted Answers:
c)