

# Unit 6 - Week 4

**Course outline**

How does an NPTEL online course work?

Week 0 Assignment 0

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Week 4

- Lecture 07 : Enzymes -I
- Lecture 08 : Enzymes -II
- Lecture material of Week 4**
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## Week 4 Assignment 4

The due date for submitting this assignment has passed. **Due on 2020-02-26, 23:59 IST.**  
As per our records you have not submitted this assignment.

1) The non protein part of an enzyme is known as 1 point

- a) Holoenzyme
- b) Vitamin
- c) Apoenzyme
- d) Prosthetic group

a)  
 b)  
 c)  
 d)

No, the answer is incorrect.  
Score: 0  
Accepted Answers: d)

2) The class of enzyme that catalyzes synthetic reactions where two molecules are joined together and ATP is used is 1 point

- a) Hydrolases
- b) Lyases
- c) Ligases
- d) Isomerases

a)  
 b)  
 c)  
 d)

No, the answer is incorrect.  
Score: 0  
Accepted Answers: c)

3) The benefit of measuring the *initial* rate of a reaction  $V_0$  is that at the beginning of a reaction: 1 point

- a) [ES] can be measured accurately.
- b) changes in [S] are negligible, so [S] can be treated as a constant.
- c) changes in  $K_m$  are negligible, so  $K_m$  can be treated as a constant.
- d)  $V_0 = V_{max}$

a)  
 b)  
 c)  
 d)

No, the answer is incorrect.  
Score: 0  
Accepted Answers: b)

4) Turn over number of an enzyme is dependent upon 1 point

- a) Size of enzyme
- b) Molecular weight of enzyme
- c) Active sites
- d) Concentration of substrate

a)  
 b)  
 c)  
 d)

No, the answer is incorrect.  
Score: 0  
Accepted Answers: c)

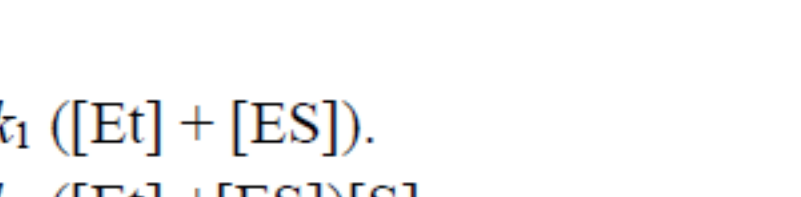
5) Koshland's theory of enzyme action is known as 1 point

- a) Reduced fit theory
- b) Lock and key theory
- c) Induced fit theory
- d) Enzyme coenzyme theory

a)  
 b)  
 c)  
 d)

No, the answer is incorrect.  
Score: 0  
Accepted Answers: c)

6) Michaelis and Menten assumed that the overall reaction for an enzyme-catalyzed reaction could be written as 1 point



Using this reaction, the rate of breakdown of the enzyme-substrate complex can be described by the expression:

- a)  $k_1 ([E] + [ES])$ .
- b)  $k_1 ([E] + [ES])[S]$ .
- c)  $k_2 [ES]$ .
- d)  $k_{-1} [ES] + k_2 [ES]$ .

a)  
 b)  
 c)  
 d)

No, the answer is incorrect.  
Score: 0  
Accepted Answers: d)

7) A small molecule that decreases the activity of an enzyme by binding to a site other than the catalytic site is termed as a(n): 1 point

- a) allosteric inhibitor.
- b) alternative inhibitor.
- c) competitive inhibitor.
- d) stereospecific agent.

a)  
 b)  
 c)  
 d)

No, the answer is incorrect.  
Score: 0  
Accepted Answers: a)

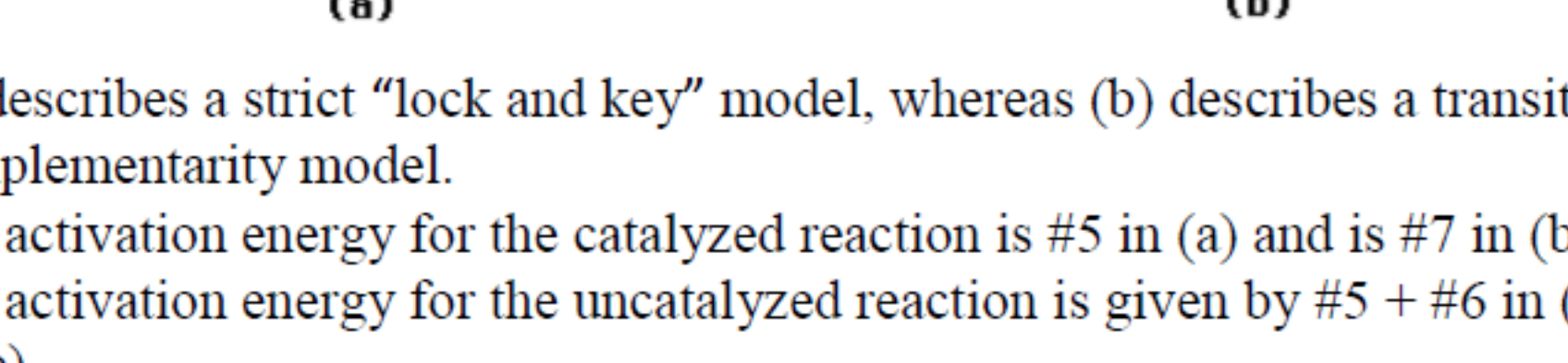
8) Pepsin and urease are examples for which class of enzymes 1 point

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

a)  
 b)  
 c)  
 d)

No, the answer is incorrect.  
Score: 0  
Accepted Answers: a)

9) Compare the two reaction coordinate diagrams below and select the answer that correctly describes their relationship. In each case, the single intermediate is the ES complex 1 point



- a) (a) describes a strict "lock and key" model, whereas (b) describes a transition-state complementarity model.
- b) The activation energy for the catalyzed reaction is #5 in (a) and is #7 in (b)
- c) The activation energy for the uncatalyzed reaction is given by #5 + #6 in (a) and by #7 + #4 in (b)
- d) The contribution of binding energy is given by #5 in (a) and by #7 in (b)

a)  
 b)  
 c)  
 d)

No, the answer is incorrect.  
Score: 0  
Accepted Answers: a)

10) The active site of an enzyme differs from an antibody-antigen binding site in that the enzyme active site 1 point

- a) contains modified amino acids.
- b) catalyzes a chemical reaction.
- c) is complementary to a specific ligand.
- d) None of the above are correct.

a)  
 b)  
 c)  
 d)

No, the answer is incorrect.  
Score: 0  
Accepted Answers: c)

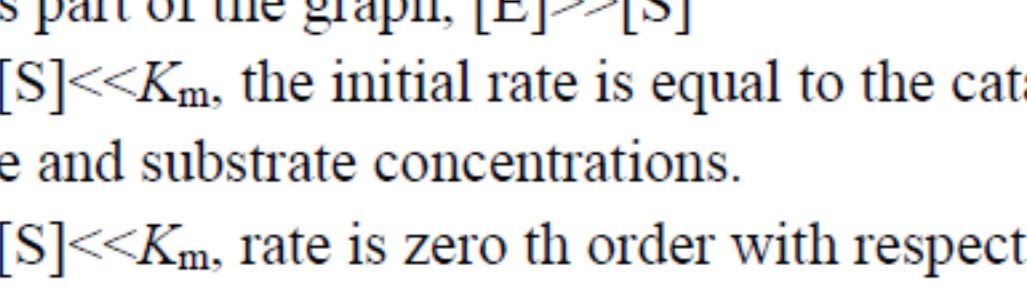
11) A certain enzyme will hydrolyze egg white but not starch. Which statement best explains this observation? 1 point

- a) Starch molecules are too large to be hydrolyzed.
- b) Enzyme molecules are specific in their actions.
- c) Egg white acts as a coenzyme for hydrolysis
- d) Starch is composed of amino acids.

a)  
 b)  
 c)  
 d)

No, the answer is incorrect.  
Score: 0  
Accepted Answers: b)

12) Which of the following statements is true about the region of the graph below where  $[S] \ll K_m$ ? 1 point



- a) For this part of the graph,  $[E] \gg [S]$
- b) When  $[S] \ll K_m$ , the initial rate is equal to the catalytic efficiency multiplied by the free enzyme and substrate concentrations.
- c) When  $[S] \ll K_m$ , rate is zero th order with respect to S.
- d) This region (where  $[S] \ll K_m$ ) will order fordetermination of the  $K_m$

a)  
 b)  
 c)  
 d)

No, the answer is incorrect.  
Score: 0  
Accepted Answers: b)

13) Which one of the following is not among the six internationally accepted classes of enzymes? 1 point

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

a)  
 b)  
 c)  
 d)

No, the answer is incorrect.  
Score: 0  
Accepted Answers: d)

14) Enzyme X exhibits maximum activity at pH = 6.9. X shows a fairly sharp decrease in its activity when the pH goes much lower than 6.4. One likely interpretation of this pH activity is that: 1 point

- a) a Glu residue on the enzyme is involved in the reaction.
- b) a His residue on the enzyme is involved in the reaction.
- c) the enzyme has a metallic cofactor.
- d) the reaction relies on specific acid-base catalysis.

a)  
 b)  
 c)  
 d)

No, the answer is incorrect.  
Score: 0  
Accepted Answers: b)

15) Which of the following is **TRUE** for enzymes? 1 point

- I. They increase the rate of reaction by stabilizing the transition state
- II. They raise the activation energy to shift the equilibrium to form the products
- III. They lower the activation energy by altering the products of a reaction

- a) I only
- b) II and III
- c) I and III
- d) III only

a)  
 b)  
 c)  
 d)

No, the answer is incorrect.  
Score: 0  
Accepted Answers: a)