

Unit 6 - Week 4 :

Course outline

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- Lecture 16 : Concept of Enzyme Inhibition
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Assignment 4

The due date for submitting this assignment has passed. **Due on 2019-08-28, 23:59 IST.**
As per our records you have not submitted this assignment.

1) Which of the following statements regarding simple Michaelis-Menten enzyme kinetics are correct? **1 point**

- (A) K_M is expressed in terms of a reaction velocity (e.g., mol sec⁻¹).
- (B) K_M is the association constant of the enzyme-substrate complex.
- (C) K_M is the concentration of substrate required to achieve half of V_{max} .
- (D) K_M is the concentration of substrate required to convert half the total enzyme into the enzyme-substrate complex.

- a
- b
- c
- d

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

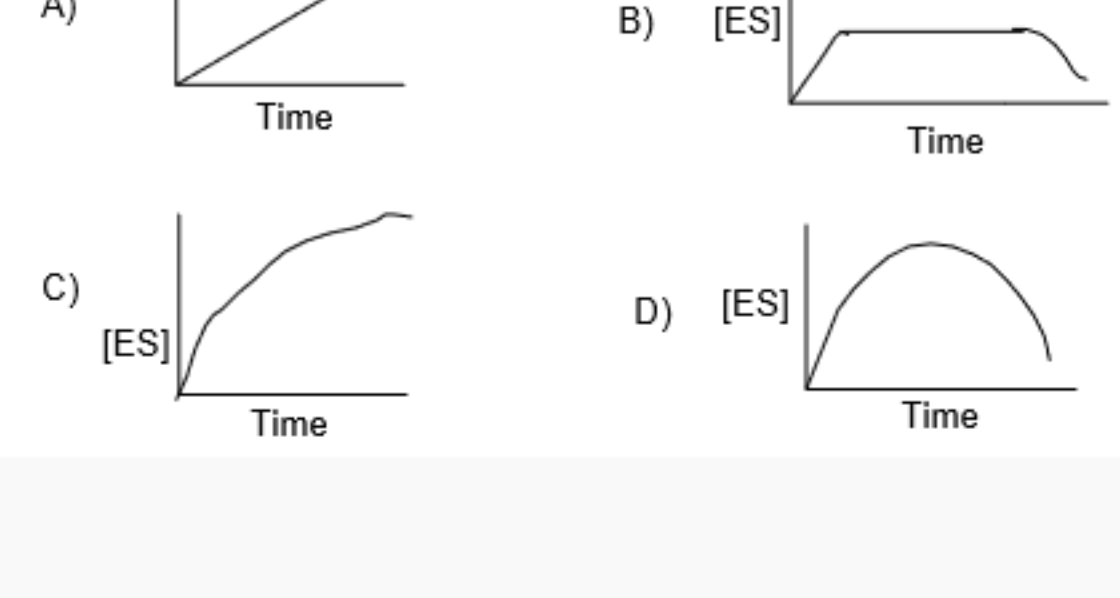
2) The ratio of [S] to K_M in an enzyme catalysed reaction obeying Michael-Menten kinetics when the velocity (V_0) of the reaction is 75% of V_{max} is **1 point**

- a. 2:1
- b. 3:1
- c. 1:1
- d. 4:1

- a
- b
- c
- d

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

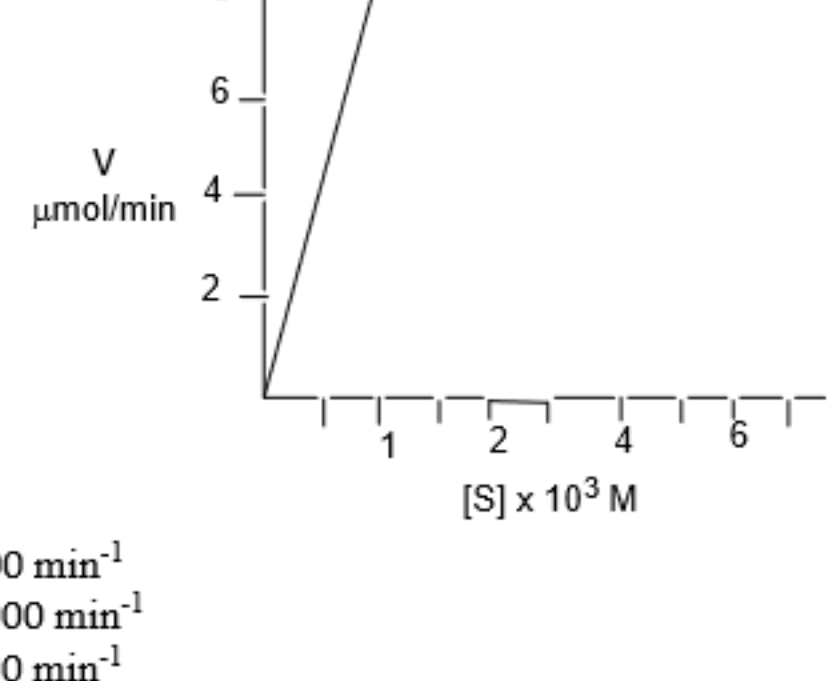
3) Identify the plot of [ES] vs time in the following enzyme catalysed reaction following Michael-Menten kinetics: **1 point**



- a
- b
- c
- d

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

4) Consider the following plot of velocity vs substrate concentration of an enzyme catalysed reaction obeying Michael-Menten kinetics with an initial enzyme concentration of $10^3 \mu\text{M}$. The turnover number for the reaction is **1 point**

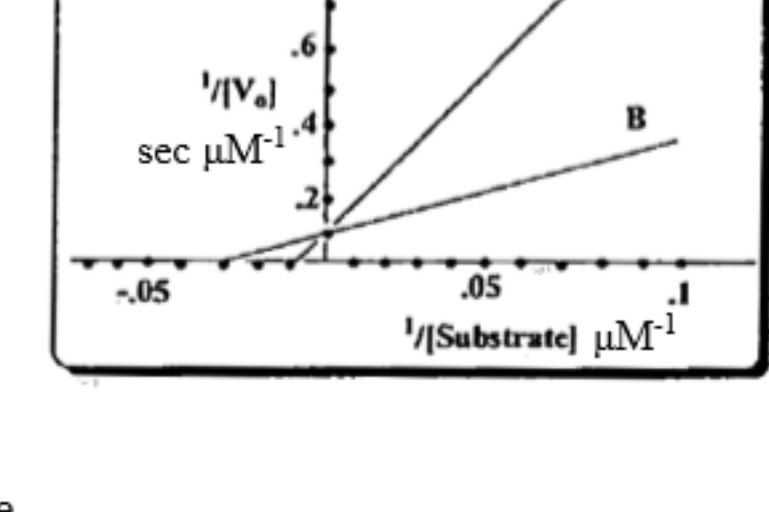


- a. 800 min^{-1}
- b. 8000 min^{-1}
- c. 400 min^{-1}
- d. 4000 min^{-1}

- a
- b
- c
- d

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

5) Consider the following Lineweaver-Burke plot for an enzyme catalysed reaction for a substrate with and without an inhibitor X (initial enzyme concentration is $0.001 \mu\text{M}$) answer the following question. The type of inhibition is **1 point**



- a. Competitive
- b. Non-competitive
- c. Uncompetitive
- d. Suicide

- a
- b
- c
- d

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

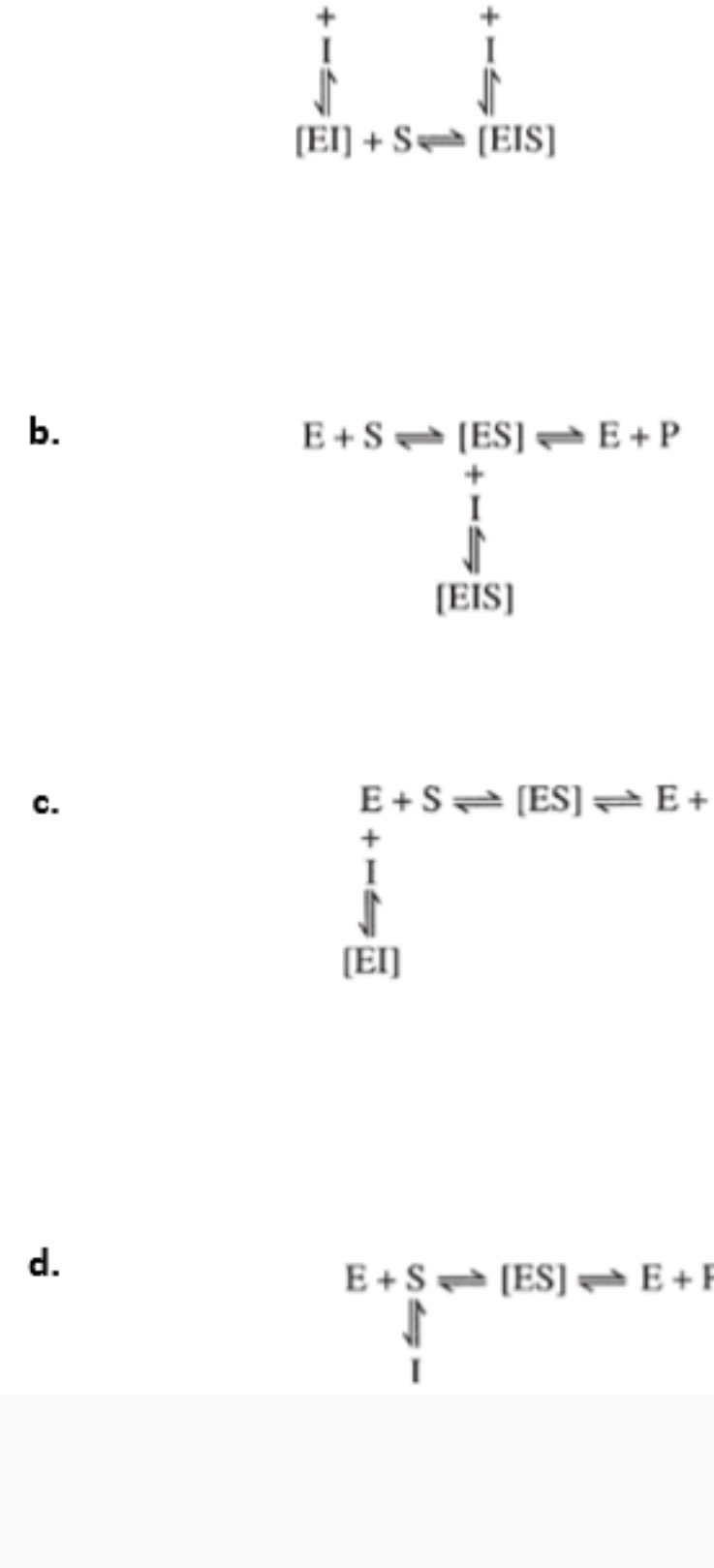
6) The various sites in an antigen to which an antigen binds with different efficiencies are known as **1 point**

- a. Paratopes
- b. Prototopes
- c. Epitopes
- d. Haptens

- a
- b
- c
- d

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

7) Which of the following diagrams best describes the equilibrium associated with a competitive inhibitor (I)? **1 point**



- a
- b
- c
- d

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

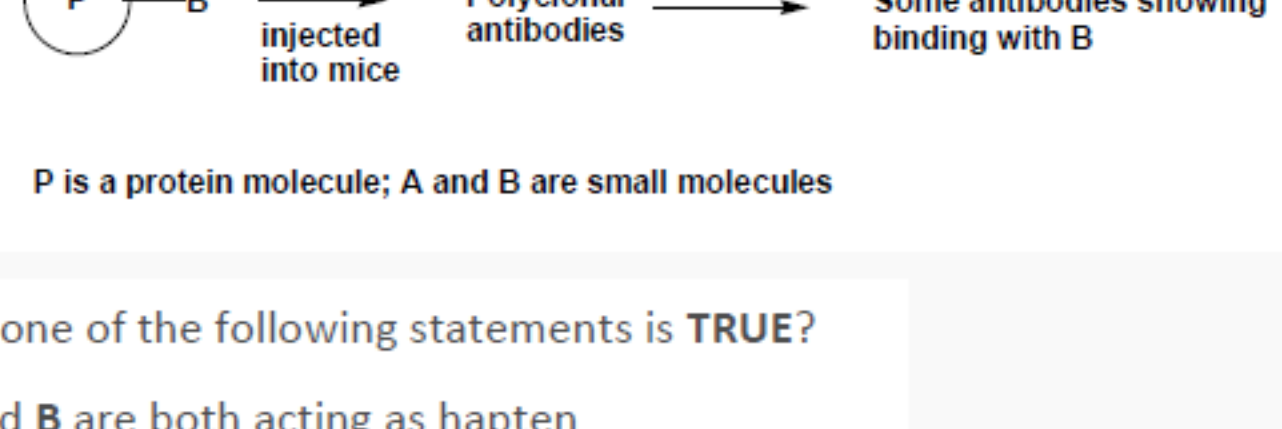
8) For uncompetitive inhibition of an enzyme **1 point**

- a) V_{max} remains constant, K_M increases
- b) V_{max} increases, K_M decreases
- c) V_{max} decreases, K_M decreases
- d) V_{max} increases, K_M increases

- a
- b
- c
- d

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

Consider the following diagram and answer the subsequent sub-questions 9-10



P is a protein molecule; A and B are small molecules

9) Which one of the following statements is TRUE? **1 point**

- a. A and B are both acting as hapten
- b. A is a hapten while B is not
- c. B is a hapten while A is not
- d. None of A or B is a hapten

- a
- b
- c
- d

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

10) Which one of the following statements is INCORRECT? **1 point**

- a. P is immunogenic
- b. P is non-immunogenic
- c. A is non-immunogenic
- d. B is non-immunogenic

- a
- b
- c
- d

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

11) Which one of the following statements about monoclonal antibody production is TRUE? **1 point**

- a. B cell + hybridoma → myeloma
- b. B cell + myeloma → hybridoma
- c. B cell + spleen cell → hybridoma
- d. T cell + hybridoma → myeloma

- a
- b
- c
- d

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

12) What is the ratio of V_0/V_{max} when $[S] = 5K_M$? **1 point**

- a. 5/6
- b. 1/5
- c. 1/2
- d. 4/5

- a
- b
- c
- d

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

13) An enzyme with a K_M value of 5 mmol has a reaction rate of 200 mmol/min at a substrate concentration of 0.5 mmol. What is the maximum reaction rate that this enzyme can achieve when it is saturated with substrate? **1 point**

- a. 1100 mmol/min
- b. 1000 mmol/min
- c. 2000 mmol/min
- d. 2200 mmol/min

- a
- b
- c
- d

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