BYJU'S EXAM PREP

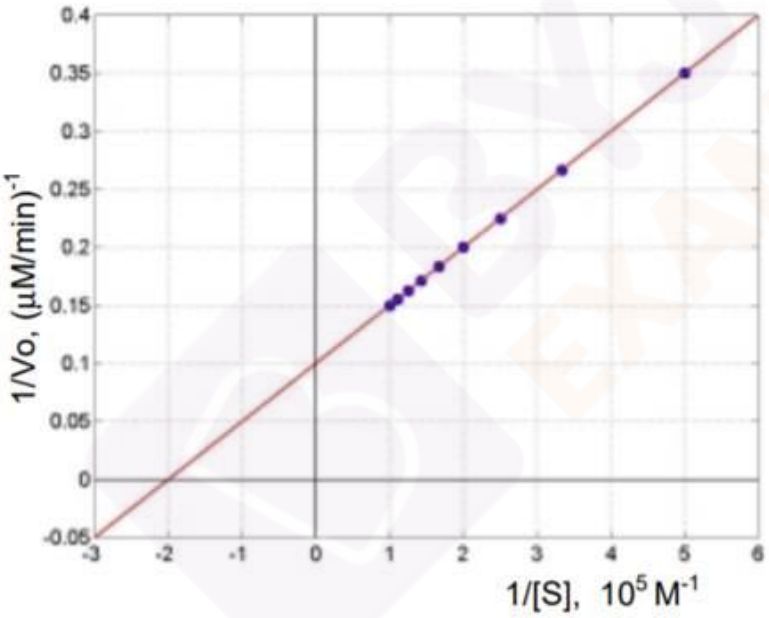
Important Questions on Enzyme Kinetics

1.Enzyme Activity can be calculated by which unit?
A. Katal.
B. IU.
C. Mol per minute per ml.
D. All

2.What is known as Michaelis Menten Equation?
A. V_{Max}= V0. (s)/ Km+(S)
B. S= $V_{max.}$ (Km)/ Vo+(S)
C. Vo=$V_{max.}$ (s)/ Km+(S)
D. Km=$V_{max.}$ (s)/ Vo+(S)

3.In a Lineweaver burk plot, enzyme initial rate and substrate concentration is given, graph is shown in figure, concentration of enzyme is maintained at constant level that is 1μM (10-6).

(S)μM	(Vo)μM/Min
3	2.9



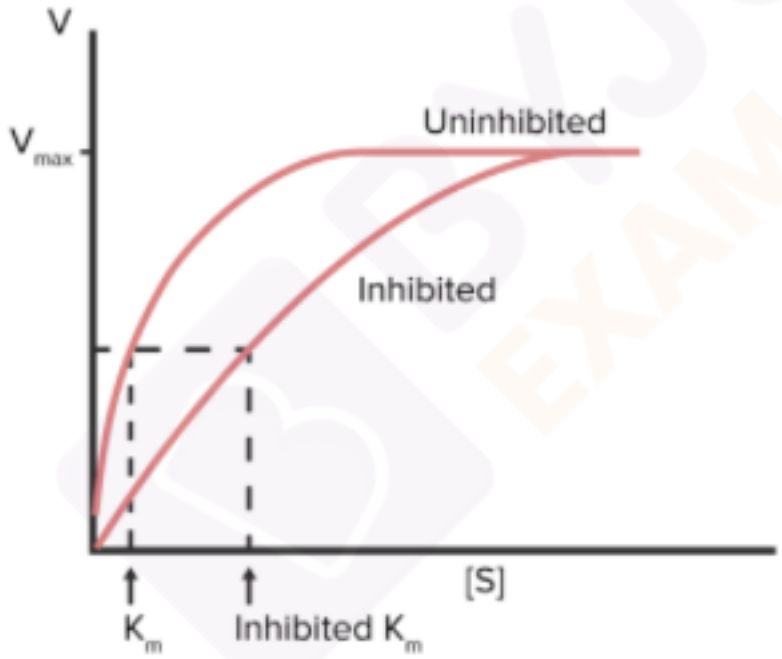
Calculate the Km Value and Vmax of the reaction.
A. Km=10μM, Vmax=5μM/min
B. Km=5μM, Vmax=5μM/min
C. Km=5μM, Vmax=4μM/min
D. Km=4μM, Vmax=5μM/min

4.Which statement is true for allosteric enzyme?
A. It regulates the binding of molecule at one site that directly affect binding of another molecule in distinct site.
B. Generally, this enzyme is multi subunit protein in which one sub unit perform catalytic function and another performs regulatory function.
C. Both.
D. None

5.What is true about Michaelis constant (Km)?
A. It indicates the substrate concentration at which rate of reaction is half with reference to its maximum value.
B. It indicates the substrate concentration at which rate of reaction is double with reference to its maximum value.
C. It indicates that the substrate concentration is free from rate of reaction is double with reference to its maximum value.
D. None

6.In a catalytic reaction why does Vmax not get increase while adding substrate continuously?
A. In an enzyme Vmax is saturated with enzyme
B. In an enzyme Vmax is saturated with Substrate
C. both
D. none

7.In the picture graph shown below, between substrate concentration and rate of reaction upper line shows rate of reaction without inhibitor and lower shows rate of reaction with inhibitors, what type of inhibition is this?



A. Competitive inhibition
B. Non-competitive inhibition
C. Mixed inhibition
D. None

8.In a process of glycolysis where the concentration of glucose continuously increases, what will be the state of rate of reaction of glucokinase?
A. Increase.
B. Decrease.
C. Can't Change.
D. None.

9.Four statements are given about enzyme inhibition. Choose the correct one:
A. In pure competitive inhibition, inhibitor binds to free enzyme and enzyme substrate complex with equal affinity.
B. In pure non-competitive inhibition or mix inhibition, inhibitor binds to free enzyme and enzyme substrate complex with equal affinity.
C. Both.
D. None.

10.Four statements are given about mechanism of enzyme :
I) Enzyme acts through the reduction of activation energy.
II) Enzyme acts through decrease in the pH.
III) Enzyme acts through increase in pH.
IV) Enzyme acts through enhancement of activation energy.
Choose the correct option
A. I
B. II & III
C. III
D. IV

###ANSWERS###

1. D
2. C
3. B
4. C
5. A
6. B
7. A
8. A
9. B
10. A

###SOLUTIONS###

1.
Enzyme activity can be represented by all the above three units.
2.
In enzyme kinetics, $Vo=V_{max.}$ (s)/ Km+(S), is known as Michaelis Menten Equation, where Vo =initial rate of reaction
V_{max}=maximal rate of reaction
Km= Michaelis Menten constant
S=concentration of substrate
3.
Calculation of Km = Km is calculated by X intercept, that is -1/Km (in Lineweaver burk plot)
In given plot X intercept is -2
Thus -1/-2=1/2=0.5
According to plot $0.5*10^{-5}=5*10^{-6}$M
Km=5μM
Km=1/2Vmax
Vmax=2Km
Vmax=5*2=10
Vmax=10μM/Min
4.
Allosteric is a type of enzymes that regulate the binding of molecules which affect distinct site and it is a multiunit enzyme which regulate the catalytic functions.
5.
Michaelis constant represented as Km value, and defined as concentration of substrate at which half of active site is occupied, and indicates the higher affinity to enzyme for substrate, lower the Km value.
6.
Vmax is known as maximum velocity in enzyme catalysed reaction. A reaction reaches at this point when enzyme's active site is occupied by substrate. So, at this point enzyme is saturated by substrate and no change observed in Vmax.
7.
In this graph, observe that Vmax is same for both type of reactions; this indicates that inhibitor has no effect on maximal growth and thus this is a type of competitive inhibition.
8.
In an enzyme catalysed reaction, the relation is usually hyperbolic; it indicates as the concentration of substrate increases the rate of reaction also increases.
9.
In pure none competitive inhibition or also known as mixed inhibition, Inhibitors are able to bind enzyme substrate complex and free enzyme both end equally.
10.
Enzyme makes reaction rate faster and for faster reaction rate activation energy should be less.

BYJU'S EXAM PREP

CRASH COURSES

Enrol for Ongoing CSIR NET Crash Courses

CSIR NET General Aptitude Course 2021

Complete Study Plan to Boost the CSIR NET Score

What to Expect?

- Live Classes
- Quizzes
- Doubt Sessions
- PYQ Discussion
- Mock Tests
- Chapter-wise Tests
- Revision Tests
- Expert faculty

Course Language

- Bilingual

This Course Includes

- 80+ Live Classes
- 1000+ Practice Questions
- Study Notes & Formula Sheets
- 10+ Mock Tests

CSIR NET Life Science 2021 Crash Course

Revision Plan to clear the exam

What to Expect?

- Live Classes
- Quizzes
- Doubt Sessions
- PYQ Discussion

Course Language

- English

This Course Includes

- 200+ Live Classes
- 3000+ Practice Questions
- 200+ Study PDFs
- 10+ Mock Tests

CSIR NET Chemical Science 2021 Crash Course

Complete Revision Plan to ACE the Exam

What to Expect?

- Live Classes
- Quizzes
- Doubt Sessions
- PYQ Discussion
- Mock Tests
- Chapter-wise Tests
- Revision Tests
- Expert faculty

Course Language

- English

This Course Includes

- 180+ Live Classes
- 3000+ Practice Questions
- 200+ Study PDFs
- 10+ Mock Tests

https://byjusexamprep.com/

GET IT ON Google Play