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Courses » Bioreactors

Announcements

Course

Ask a Question

Progress

FAQ



Unit 4 - week 2

Register for Certification exam

Course outline

How to access the portal

Week 0

week 1

week 2

- lecture 4 - some important concepts

- lecture 5 - enzyme bioreactors, enzyme kinetics

- lesson 6 - solution to PP 2.1

- lesson 7 - inhibited enzyme kinetics

- lecture 8 - solution to PP 2.2

- lecture 9 - measurement principles and methods

- Quiz : Assignment 2

Assignment 2

The due date for submitting this assignment has passed.

As per our records you have not submitted this assignment. **Due on 2019-02-13, 23:59 IS**

1) Which of the following biomasses are bio-products in their own right?

1 point

- Spirulina
- Single cell protein
- Penicillin
- Amylases

No, the answer is incorrect.

Score: 0

Accepted Answers:

Spirulina
Single cell protein

2) The medium for cell growth should consist of

1 point

- Carbon source
- Nitrogen source
- Mineral salts
- Growth inhibitors

No, the answer is incorrect.

Score: 0

Accepted Answers:

Carbon source
Nitrogen source
Mineral salts

3) Ligno-cellulosic material is used as a source of carbon in bioprocess because

1 point

- it does not require any pre-processing steps
- it is preferred by microbes than simple sugars

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4) A limiting substrate in the medium _____

1 point

- Limits growth
- Limits contamination
- Limits product inhibition
- Limits the production of unwanted by-product

No, the answer is incorrect.**Score: 0****Accepted Answers:***Limits growth*

5) Which of the following statements below are true?

1 point

- Enzymes can be the products in a bioprocess
- Enzymes can produce products of interest
- Microbes can produce enzymes which help in product formation
- Enzymes do not take part in any bioprocess

No, the answer is incorrect.**Score: 0****Accepted Answers:***Enzymes can be the products in a bioprocess**Enzymes can produce products of interest**Microbes can produce enzymes which help in product formation*

6) In the Monod model for growth kinetics, with a single limiting substrate S, the plot of substrate concentration vs growth rate is

1 point

- Linear
- Rectangular hyperbolic
- Sigmoidal
- Cannot be determined

No, the answer is incorrect.**Score: 0****Accepted Answers:***Rectangular hyperbolic*

7) Which of the following statement/statements are true with respect to substrate utilization under low level of substrate?

1 point

- Substrate goes completely towards cell multiplication
- Substrate is utilized only for product formation
- Substrate is utilized for cell- maintenance activities
- The rate of growth is now a difference between the true specific growth rate and endogenous metabolism constant

No, the answer is incorrect.**Score: 0****Accepted Answers:***Substrate is utilized for cell- maintenance activities**The rate of growth is now a difference between the true specific growth rate and endogenous metabolism constant*

8) In non-competitive inhibition, the inhibitor binds to

1 point



- Substrate
- Enzyme
- Enzyme substrate complex
- Both the enzyme and enzyme substrate complex

No, the answer is incorrect.

Score: 0

Accepted Answers:

Both the enzyme and enzyme substrate complex



9) Among the following, choose the suitable methods to estimate the total cell concentration of 1 pc
a mold

- Dry weight
- Optical density
- Packed cell volume
- Measuring the cell contents like DNA

No, the answer is incorrect.

Score: 0

Accepted Answers:

Dry weight

Packed cell volume

Measuring the cell contents like DNA

10) Which of the following is true?

1 point

- K_m is dependent on the enzyme concentration
- K_m is independent of the enzyme concentration
- V_m varies with enzyme concentration
- V_m does not vary with enzyme concentration

No, the answer is incorrect.

Score: 0

Accepted Answers:

K_m is independent of the enzyme concentration

V_m varies with enzyme concentration

11) Consider an enzyme substrate reaction with the kinetic data given below:

1 point

	[S1]=0.5M	[S2]=0.2M	[S3]=0.05M
I[M]	1/V1	1/V2	1/V3
0	0.21	0.54	0.8
0.005	0.59	0.83	1.59
0.01	1.12	2.1	3.52

Identify the type of inhibition:

- Competitive inhibition
- Un-competitive inhibition
- Non- competitive inhibition
- The inhibitor in this case does not cause any inhibition

No, the answer is incorrect.

Score: 0

Accepted Answers:

Non-competitive inhibition

12) Determine K_m' for the reaction with the above data. Choose the answer closest to your calculated answer. **1 point**

 7.85×10^{-2} 8.56×10^{-2} 10.43×10^{-2} 12.35×10^{-2}

No, the answer is incorrect.

Score: 0

Accepted Answers:

10.43×10^{-2}

13) Determine the inhibition constant K_I : Choose the answer closest to your calculated answer. **1 point**

 4.35×10^{-3} 6.02×10^{-3} 8.65×10^{-3} 3.25×10^{-3}

No, the answer is incorrect.

Score: 0

Accepted Answers:

6.02×10^{-3}



Previous Page

End