

CC12 Model Questions

Unit 1 + Unit 2: Introduction + Isolation of industrially important microbial strains and fermentation media
Short answer type questions (2 marks each)

What is Baffle?

Define auxotrophic mutant

What is seed culture?

What is auxostat?

Give example of 2 antifoam agents

Write the advantages and disadvantages of solid-state fermentation

How does the dilution rate influences the growth rate of a fermentation process?

Describe significance of upstream process during fermentation process

Answer the following questions (3 marks each)

Describe the importance of secondary screening in industrial microbiology

Write its importance of fluidized bed bioreactor in industrial microbiology

Write the limitation of stirred tank bioreactors

Draw and label different parts of an ideal stirred tank bioreactor.

Unit 4: Down-stream processing

Answer the following questions

SL. No.

Unit 4 What is Down-stream processing?

Write the different steps of down-stream processing

Write short note on lyophilization

Briefly describe how solid materials are removed after the fermentation process?

Unit 3 + Unit 5: Types of Fermentation process + Microbial production of industrial products
(micro-organisms involved, media, fermentation conditions, downstream processing and uses)

Short answer type questions (2 marks each)

SL. No.

1. Why are microbes industrially preferred over plants and animals for amylase production?
2. Which microbes are employed for commercial production of citric acid? Write the raw materials used for citric acid production.
3. What are the uses of Ethanol?
4. Write the different raw materials of bioethanol production.
5. What is malting and milling?
6. What byproducts are produced during ethanol fermentation?
7. Name the microorganisms producing glutamic acid.
8. What are the raw materials used for glutamic acid production?
9. What is MSG? Why is it toxic?
10. Write the different uses of glutamic acid.
11. How vitamin B12 is produced commercially and which microbes are used?
12. Write the name of some most common immobilized lipases. What is intracellular lipase?
13. Write the name of the fungal strain and the bioreactor for commercial production of penicillin.
14. Why does microbial protease have commercial importance?
15. What is ageing of wine?
16. What are the raw materials for protease production?
17. What is Hops?

Broad answer type questions (Above 2 marks)

SL. No.

1. Write the fermentation condition, strains of bacterial and fungal amylase. 3
2. How will you recover and screen amylase after fermentation? Why is screening of amylase necessary after industrial production? 3+2=5
3. Write the detailed recovery process of citric acid production 3
4. Write the entire fermentation of ethanol from sugarcane with a simple diagram. 4.
5. Write the ethanol fermentation from lignocellulosic biomass stepwise in a flowchart 3

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| 6. | Describe the fermentation process of glutamic acid by bacteria. How glutamic acid is recovered after fermentation? | 2+2=4 |
| 7. | Describe the steps of fermentation of vitamin B12 by <i>Propionibacterium sp.</i> | 3 |
| 8. | How vitamin B12 is isolated and recovered after completion of fermentation? | 4 |
| 9. | Write the name of the bacterial strain and raw material for commercial production of lipase. How will you isolate and screen lipase producing bacteria? | 3+2=5 |
| 10. | Write in detail the downstream processing of penicillin production. | 4 |
| 11. | Write the steps of wine making with fermentation condition, recovery in a flow chart. | 4 |
| 12. | Give an outline of protease production by microorganisms in a flowchart. Write the applications of proteases. | 2+2=4 |
| 13. | Define the term malting, mashing, lautering, brewing, wort clarification and maturation of beer in commercial production of beer. | 4 |

Unit 6: Enzyme immobilization

Answer the following questions

- SL. No. What is alginate and how is it used for enzyme immobilization?
- Give example of three immobilizing agents
- Write the importance of immobilization from industrial aspects