

(6 pages)

Reg. No. :

Code No.: 5189

Sub. Code: ZMBM 42

M.Sc. (CBCS) DEGREE EXAMINATION, APRIL 2025.

Fourth Semester

Microbiology – Core

FERMENTATION AND INDUSTRIAL
MICROBIOLOGY

(For those who joined in July 2021-2022 only)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. The Service of ATCC includes the supply of _____.
- (a) Human Cells (b) Microbial Cultures
(c) Microbial Products (d) All

2. Corn steep liquor is NOT used for the production of _____.
- (a) Ethanol (b) Penicillin
(c) Lactic acid (d) Vitamins
3. The doubling time of *E.coli* is _____ mts.
- (a) 17 (b) 27
(c) 30 (d) 35
4. Sparger is a part of the fermenter associated with the control of _____.
- (a) Buffer supply (b) Agitation
(c) Aeration (d) Temperature
5. Which of the following fermenters are characterized by height to diameter ratio?
- (a) Tower fermenter (b) Airlift fermenter
(c) Hollow fibre (d) Perfusion bioreactor
6. What is the function of carbon in stainless steel?
- (a) Improves resistance to corrosion
(b) Improves ductility
(c) Reduces sensitization
(d) Improves halogen resistance

7. Flocculating agents are _____.
- (a) Inorganic salts
 - (b) Water soluble organic polymers
 - (c) Act by shrinking the ionic double layer, or neutralizing the surface charge of suspended particles, or bridging between particles
 - (d) All
8. Choose the correct statement(s) regarding Gravity settling
- (a) This is the most common type of settling process
 - (b) Involves allowing the wastewater flow slowly through a sedimentation tank or clarifier
 - (c) The velocity of the flow is reduced, which causes the solid particles to settle to the bottom of the tank due to gravity. 2.2.
 - (d) All
9. Which of the following chemical is used as pharmaceuticals, cosmetics, lotions, ointments, and antiperspirants in addition to drug carrier?
- (a) Ethanol
 - (b) Vinegar
 - (c) Butane diol
 - (d) Esters

10. Protease enzyme is useful for _____.
- (a) Detergents
 - (b) Leather
 - (c) Textiles
 - (d) All

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).
Each answer should not exceed 250 words.

11. (a) What do you know about Down Stream Processing?
- Or
- (b) Portray the role of filters used in industries for achieving sterilisation.
12. (a) Differentiate Inoculum development media from production.
- Or
- (b) Write down about the parts in a fermenter used for agitation.
13. (a) Make a note on Solid State Fermentation (SSF).
- Or
- (b) Describe the methods used for controlling foam problem in fermenter.

14. (a) Depict the principle and uses of drying.

Or

(b) Add a note on crystallisation.

15. (a) Can we use microbes for producing organic acid? Prove with one you studied.

Or

(b) Document about the types and uses of Immobilisation.

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b)
Each answer should not exceed 600 words.

16. (a) Discuss in detail about strain improvement techniques and its applications.

Or

(b) What are the benefits of screening? And discuss in detail about Secondary screening methods.

17. (a) Explain in detail about scale up fermentation.

Or

(b) Document the diverse types of components needed for assembling an efficient fermenter.

18. (a) Describe in detail about roles of computers in regulating the operations in a fermenters.

Or

(b) Present your views about diverse types of ferementers currently in use.

19. (a) Display the diverse types of centrifuges used for DSP.

Or

(b) Showcase in detail about lyophilisation process.

20. (a) Record in detail about the steps involved in wine production.

Or

(b) Illustrate the diverse types of yeasts used in Industries.