

(6 pages)

Reg. No. : .....

Code No. : 20437 E Sub. Code : AMMI 52

B.Sc. (CBCS) DEGREE EXAMINATION,  
APRIL 2023.

Fifth Semester

Microbiology – Core

INDUSTRIAL MICROBIOLOGY AND BIOPROCESS  
TECHNOLOGY

(For those who joined in July 2020 onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. SSF example is \_\_\_\_\_.
- (a) Liquid media  
(b) Mushroom cultivation  
(c) BGA cultivation  
(d) Azolla cultivation

2. \_\_\_\_\_ is used for ethanol fermentation.
- (a) Aspergillus (b) Cladosporium  
(c) Saccharomyces (d) Glomus
3. Which is not related to the bioreactor?
- (a) pH (b) temperature  
(c) thermostat (d) aeration
4. During fermentation the aeration is provided by a device called \_\_\_\_\_.
- (a) Stirrer (b) Baffles  
(c) Sparger (d) All the above
5. Basic principle of the industrial microbiology is \_\_\_\_\_.
- (a) Suitable growth conditions  
(b) Fermentation  
(c) Providing aseptic conditions  
(d) All of these
6. Antifoam agent is/are \_\_\_\_\_.
- (a) Silicon compounds  
(b) Corn oil  
(c) Soybean oil  
(d) All of these

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7. Major force acting on solid particle settings are \_\_\_\_\_.
- (a) gravitational force  
(b) drag force  
(c) buoyant force  
(d) all the above
8. Coagulation and flocculation are used to form \_\_\_\_\_ before centrifugation.
- (a) Colloids (b) Cell disruption  
(c) Cell aggregates (d) Flocs
9. Antibiotics are \_\_\_\_\_.
- (a) Primary metabolite  
(b) Secondary metabolite  
(c) Precursor  
(d) Product
10. Vinegar production involves \_\_\_\_\_.
- (a) Yeast only  
(b) Yeast with lactic acid bacteria  
(c) Yeast with acetic acid bacteria  
(d) Yeast with butric acid bacteria

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PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 250 words.

11. (a) Explain about developmental stages in industrial microbiology.
- Or
- (b) What do you mean by SSF?
12. (a) Give an account on Air life fermenter.
- Or
- (b) Write short notes on immobilization of cells.
13. (a) What is fermentation? What are the inhibitors used in fermentation process?
- Or
- (b) What are the media sterilization methods used in fermentation process?
14. (a) Discuss about Ultrafiltration.
- Or
- (b) How would you separate microbial cells after the fermentation process?

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[P.T.O.]

15. (a) Write about Vinegar production.

Or

(b) Write short notes on glutamic acid production.

PART C — (5 × 8 = 40 marks)

Answer ALL the questions, choosing either (a) or (b).

Each answer should not exceed 600 words.

16. (a) How will you construct batch and continuous fermentation process?

Or

(b) Give a detail account on strain improvement in industrial microbiology.

17. (a) Write a detail notes on stirred bioreactors.

Or

(b) Discuss about fluidized bed bioreactor.

18. (a) Write about fermentation media design and usage.

Or

(b) How would you develop inoculums for yeast in the fermentation process?

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19. (a) Explain in detail about chromatography used in downstream processing.

Or

(b) Write about membrane based purification.

20. (a) Discuss in detail about Dextran and Xanthan production.

Or

(b) Write a detail notes on Vitamin B<sub>12</sub> production.

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