

2023/TDC(CBCS)/ODD/SEM/  
BTCHCC-501T/279

TDC (CBCS) Odd Semester Exam., 2023

BIOTECHNOLOGY

( Honours )

( 5th Semester )

Course No. : BTCHCC-501T

( Bioprocess Technology )

Full Marks : 50

Pass Marks : 20

Time : 3 hours

The figures in the margin indicate full marks  
for the questions

SECTION—A

Answer ten questions, selecting any two from each

Unit :  $2 \times 10 = 20$

UNIT—I

1. Define bioprocess technology.
2. What is the application of bioprocess technology?
3. What is continuous culture?

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UNIT—II

4. What is surface culture?
5. Define bioreactor.
6. Write a note on cyclone column bioreactor.

UNIT—III

7. Define upstream processing.
8. What do you mean by culture media?
9. Write about inoculum development.

UNIT—IV

10. Give a short account of factors affecting  $K_L a$ .
11. Write a note on mass transfer coefficient.
12. Write about computer-aided process control.

UNIT—V

13. Write a note on effluent treatment.
14. Give a short account of product recovery.
15. Write about single-cell protein.

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( Continued )

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SECTION—B

Answer *five* questions, selecting *one* from each  
Unit : 6×5=30

UNIT—I

16. Write notes on the following : 3×2=6
  - (a) Batch culture
  - (b) Fed batch culture
17. Give a detailed account of the types of microbial culture and growth kinetics. 3+3=6

UNIT—II

18. Write notes on the following : 3×2=6
  - (a) Packed tower bioreactor
  - (b) Airlift bioreactor
19. Give a detailed account of the design of bioprocess vessels.

UNIT—III

20. Write an essay on media sterilization.
21. Give an account of media preparation.

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( Turn Over )

UNIT—IV

22. Write an essay on bioprocess management and control system.
23. Give a detailed account of oxygen requirement in bioprocesses.

UNIT—V

24. Give a detailed account of downstream processing and product purification.
25. Describe microbial production of lactic acid in commercial scale.

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UNIT—VI