

TDC (CBCS) Odd Semester Exam., 2021  
held in March, 2022

BIOTECHNOLOGY

( 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/Write notes on any ten of the following :

2×10=20

1. Write about the fed batch culture.
2. Define bioprocess technology.
3. Point out the components of fermentation technology.

4. Define production vessels.
5. Draw and label air lift bioreactor.
6. What is submerged culture?
7. Define media sterilization.
8. Give an account of inoculum.
9. Define culture medium.
10. Anaerobic device
11. Computer-aided process control
12. Mass transfer coefficient
13. Product purification
14. Downstream processing
15. Production of amylase

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SECTION—B

Answer any *five* of the following questions :  $6 \times 5 = 30$

16. Give a detailed account of microbial culture and growth kinetics.  $3+3=6$
17. Describe continuous culture and batch culture.  $3+3=6$
18. Write notes on packed column bioreactor and cyclone column type of bioreactor.  $3+3=6$
19. Give a detailed account of design of bioprocess vessels. 6
20. Give an illustrated account of media preparation. 6
21. Define upstream processing. Give a detailed account of principles of upstream processing.  $2+4=6$
22. Define  $k_L a$ . Describe various factors affecting  $k_L a$ .  $2+4=6$
23. Give a detailed account of bioprocess measurement and control system.  $3+3=6$

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24. Give an illustrated account of microbial production of ethanol in industrial scale.
25. Describe industrial production of lactic acid. Add a note on single-cell protein.  $4+2=6$

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