



**2020/TDC(CBCS)/ODD/SEM/
BTCHCC-501T/305**

**TDC (CBCS) Odd Semester Exam., 2020
held in March, 2021**

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

1. Answer any *ten* of the following questions :

2×10=20

- (a) Define bioprocess technology.
- (b) Write about batch culture.
- (c) Define fermentation.
- (d) Name some products of fermentation technology.



(2)

- (e) Define bioprocess vessels.
- (f) What is pure culture?
- (g) Draw and label simple stirred-tank bioreactor.
- (h) What is surface culture?
- (i) Define inoculum.
- (j) How can we develop inoculum?
- (k) Define culture medium.
- (l) Write about media preparation.
- (m) Write about oxygen requirement in bioprocess.
- (n) What is anaerobic device?
- (o) Define mass transfer coefficient.
- (p) What is the importance of mass transfer coefficient?
- (q) Write about product recovery.
- (r) Write a brief account of product purification.
- (s) Name the microbes involved in amylase production.
- (t) Define downstream processing.

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(Continued)

(3)

SECTION—B

Answer any five questions

2. Give a detailed account of basic principle and components of fermentation technology. 6
3. Describe microbial culture and growth kinetics. 3+3=6
4. Write notes on air lift and cyclone column type bioreactors. 3+3=6
5. Give a detailed account of design of bioprocess vessels. 6
6. Describe briefly the principles of upstream processing. 6
7. Give a detailed account of media sterilization. 6
8. Give an illustrated account of bioprocess measurement and control system. 6
9. Write notes on factors affecting $K_L a$ and computer-aided process control. 3+3=6
10. Give a short account of microbial production of ethanol. Add a note on single-cell protein. 3+3=6
11. Describe microbial production of lactic acid in industrial scale. 6

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