

A (Printed Pages 3)  
(20622) Roll No. ....  
B.Sc. Bio-Tech. - III Yr.

**NS-3478**  
**B.Sc. Bio-Technology**  
**Examination, June-2022**  
**Industrial Bio-Technology**  
(B-306)  
**B.Sc. (Bio-Tech.)**

*Time : Three Hours ] [Maximum Marks : 75*

**Note :** Attempt any **five** questions.

1. What do you understand by fermentation?  
Describe applications of fermentation  
technology. 15
2. Write notes on the following :  $7.5 \times 2 = 15$ 
  - (a) Downstream processing
  - (b) Product recovery

**P.T.O.**

3. Give a detailed account on fermenters  
vs. bioreactor. 15
4. Give a detailed account on commercial  
production of penicillin. 15
5. Give a detailed account on commercial  
production of cellulases. 15
6. Write note on the following :  $5 \times 3 = 15$ 
  - (a) Batch culture
  - (b) Continuous culture
  - (c) Solid state culture
7. Write an essay on enzyme immobilization  
and its application. 15
8. Write notes on the following :  $7.5 \times 2 = 15$ 
  - (a) Lactose utilization
  - (b) Food adulteration

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9. Give a detailed account on commercial production of acetic acid. 15
10. Describe about stability analysis of bioreactors. 15