

(i) Printed Pages : 3

Roll No. ....

(ii) Questions : 9

Sub. Code : 

0	9	8	1
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Exam. Code : 

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B.Sc. (Hons.) Biotechnology 4<sup>th</sup> Semester  
(2053)

**AGRO & INDUSTRIAL BIOTECHNOLOGY**

**Paper : BIOT-405-T**

**Time Allowed : Three Hours]**

**[Maximum Marks : 67**

**Note :—** Attempt *five* questions in all. Question No. 1 is compulsory.  
Attempt *one* question from each unit.

1. Explain the following :—

- (a) Significance of microbes in agriculture.
- (b) Significance of preservation of microbes.
- (c) Prototrophs.
- (d) Selection pressure in maintaining hyper producers.
- (e) Name two microbes involved in citric acid production.
- (f) Enlist applications of amylase.
- (g) Primary metabolites.
- (h) Bioherbicides.
- (i) Mycorrhiza.
- (j) Microbial biotransformation.

1.5×10

## UNIT—I

2. (a) How microorganism plays significant role in agro and industrial biotechnology ?  
(b) Explain the methods of isolation and selection of microbes for industrially important process. 5,8
3. (a) Explain the differences between microbial and chemical industrial process.  
(b) Explain two methods for long term preservation of microbial cultures. 5,8

## UNIT—II

4. (a) How mutations help in improvement of industrial microbes ? Explain.  
(b) Write short notes on the following :
  - (i) Protoplast fusion
  - (ii) Process optimization of microbes for industrial product. 5,8
5. (a) What are autotrophs ? How auxotrophic mutants are selected ?  
(b) Write short notes on the following :
  - (i) Recombination technique for improvement of strains
  - (ii) Components of media for microbial growth. 5,8

### UNIT—III

6. (a) Explain secondary metabolites and their significance.  
(b) Explain in detail production of beer using microorganisms. 5,8
7. (a) Give applications of lipase enzyme.  
(b) Explain the process of production of cheese. 5,8

### UNIT—IV

8. Write short notes on the following :  
(a) Vermiculture  
(b) Algal single cell proteins. 6,7
9. Write short notes on the following :  
(a) Biofertilizers  
(b) Biopesticides. 7,6