

Sr. No. of Question paper : 13126

Unique Paper Code : 32167601

Name of the Paper : Industrial and Environmental Microbiology

Name of the Course : **B.Sc. (Hons.) Botany**

Semester : VI

Duration : 3 Hours

Maximum Marks : 75 Marks

Instructions for Candidates:

- (a) Attempt any **FIVE** questions in all.
- (b) **Question No. 1** is compulsory.
- (c) Attempt all parts of a question must be answered together.
- (d) Draw well labeled diagram wherever necessary.

1. (a) Expand the following abbreviations: (**Any five**)

(1 x 5=5)

- i. TDS
- ii. ATCC
- iii. EMB
- iv. MPN
- v. NBAIM
- vi. BOD

(b) Define the following (**Any five**)

(1 x 5=5)

- i. Aspect Ratio
- ii. Serial Dilution Technique
- iii. Impellers
- iv. Fermentation
- v. Eutrophication
- vi. Freeze-drying

(c) Fill in the blanks

(1 x 5=5)

- i. is an exoenzyme that hydrolyses starch.
- ii. Process of fermentation was first defined by
- iii. One of the common bacteria found in sewage.....
- iv. is a device used for introducing oxygen in the fermenter.
- v. is a denitrifying bacteria.

P.T.O.

2. Differentiate between the following (**Any three**): (3 × 5=15)
- i. Ectomycorrhiza and Endomycorrhiza
 - ii. Autoclave and Laminar Air Flow
 - iii. Solid and Liquid state fermentation
 - iv. Differential and Enrichment media
3. Write short notes on any **three** of the following: (3 × 5=15)
- (i) Distribution of microbes in environment
 - (ii) Bioreactor and its components
 - (iii) Autoclave
 - (iv) Cell Disruption
4. (a) What do you understand by enzyme immobilization. Briefly discuss different methods of enzyme immobilization. (8)
- (b) Discuss in detail the industrial production of citric acid using microbes. (7)
5. Briefly explain **any three** of the following: (5 × 3=15)
- (a) Root nodule formation in leguminous plants
 - (b) Methods for detecting coliforms in drinking water
 - (c) Downstream processing of industrial products
 - (d) Microbial growth phases
6. (a) Discuss the primary and secondary treatments of sewage water. (8)
- (b) Explain the role of microorganisms in food and pharmaceutical Industry (7)