

2023

BOTANY (Honours)

Paper Code : BOTH DSE-2

[Industrial and Environmental Microbiology]

Full Marks : 25

Time : Two Hours

*The figures in the margin indicate full marks.
Candidates are required to give their answers
in their own words as far as practicable.*

1. Answer any *five* questions of the following : $1 \times 5 = 5$

- (i) What are the trapping techniques used to capture airborne microbes?
- (ii) Name one symbiotic nitrogen fixing bacteria.
- (iii) What do you mean by lyophilization?
- (iv) What is an air-lift fermenter?
- (v) Name one bacteria associated with cellulose hydrolysis.
- (vi) Why the generation of foam takes place during the fermentation?
- (vii) Differentiate between chemostat and turbidostat.
- (viii) Write the full form of TDS.

P.T.O.

(2)

2. Answer any *four* questions of the following : $3 \times 4 = 12$

- (i) Distinguish between batch and continuous fermentation.
- (ii) Give a brief note on the types of microorganisms that are traced for monitoring water quality.
- (iii) What is MPN? What is the significance behind determination of MPN? 1+2
- (iv) Describe the industrial process for the production of citric acid.
- (v) Briefly describe the process of screening and isolation of a cellulose degrading bacteria.
- (vi) What is alginate? How is it used for enzyme immobilization? 1+2
- (vii) Write a short note on any three techniques used for cell disruption.

3. Answer any *one* question of the following : $8 \times 1 = 8$

- (i) Describe the various types of bioreactors used in bioprocess technology. 8
- (ii) With a suitable diagram, describe the industrial production of Penicillin using fermentation technology. 8