

U.G. 5th Semester Examination - 2024**BOTANY****[HONOURS]****Discipline Specific Elective (DSE)****Course Code : BOTH-DSE-T-01B****(Industrial and Environmental Microbiology)****Full Marks : 40****Time : 2½ Hours***The figures in the right-hand margin indicate marks.**Candidates are required to give their answers in their own words as far as practicable.***1. Answer any five of the following questions: 2×5=10**

- a) What is lyophilization?
- b) What is Air-lift bioreactor?
- c) Define immobilized enzyme.
- d) What is COD?
- e) What is meant by TOC of water samples?
- f) What is faecal coliform?
- g) What is Biological N₂-fixation?
- h) Define Mycorrhiza.

[Turn over]

2. Answer any two of the following questions: $5 \times 2 = 10$
- a) State the role of microbes in starch hydrolysis.
 - b) Write down the difference between BOD and COD.
 - c) Discuss briefly the process of isolation of microorganism.
 - d) Write a note on bacteria as water quality indicator from water sample.
3. Answer any two of the following questions: $10 \times 2 = 20$
- a) Describe different components of bioreactor with their function. 10
 - b) Describe the process of bioremediation of contaminated soils. 10
 - c) What is enzyme immobilization? Write the methods of enzyme immobilization. Describe the application of enzyme immobilization. Describe the industrial ethanol production in details. 10
 - d) Write short notes on: $5 + 5 = 10$
 - i) Biological N_2 -fixation
 - ii) Determinate of TOC in water samples
-