

U.G. 5th Semester Examination - 2020

BOTANY

[HONOURS]

Discipline Specific Elective (DSE)

Course Code : BOT-H-DSE-T-01

(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: 2×5=10
- a) What are extremophiles?
 - b) Give uses of an antibiotic studied by you.
 - c) What is batch fermentation?
 - d) Why TOC of water is important?
 - e) What does faecal coliforms mean?
 - f) Give one example each of a primary metabolite and a secondary metabolite.
 - g) What is axenic culture?
 - h) What is the raw material and which is the organism used to make glutamic acid?

2. Answer any **two** questions: 5×2=10
- a) Discuss briefly the method of immobilization of enzymes.
 - b) Write down the difference between BOD and COD.
 - c) Give a flowchart for the isolation of *Rhizobium* from root nodules of leguminous plants.
 - d) What is a bioreactor used for? Name a commonly used bioreactor and mention its components.
3. Answer any **two** questions: 10×2=20
- a) Define mycorrhiza. Why are some plants nonmycorrhizal? Discuss the benefits of arbuscular mycorrhizal relations to plants. 2+3+5=10
 - b) What is aeromicrobiology? What types of microbes are found in the air? What are the different methods for isolation of microbes from air? 2+4+4=10
 - c) What is bioremediation? Discuss briefly the *exsitu* bioremediation strategy. Mention the advantages and disadvantages of bioremediation. 1+5+4=10
 - d) Write notes on: 5+5=10
 - i) Lyophilization
 - ii) Downstream processing