TDC (CBCS) Even Semester Exam., 2023

BOTANY

(6th Semester)

Course No. : BOTDSE-601T

(Investment and Environmental Microbiology)

Full Marks : 50
Pass Marks : 20

Time : 3 hours

The figures in the margin indicate full marks for the questions

SECTION—A

Answer any *fifteen* of the following questions : 1×15=15

1. Define fermentation.

2. Explain the term 'fed-batch'.

3. What is lyophilization?

4. What is Penicillin?
5. What is a submerged fermentation?
6. What are the commonly used plant materials for solid-state fermentation?
7. What is a Sparger?
8. Bioreactors are made of what?
9. Define casein.
10. What is starch?
11. What is cellulose?
12. What product does glucose isomerase catalyze?
13. Define TOC.
14. Define TDS.
15. Define eutrophication.
16. Give examples of coliform bacteria.
17. Give examples of free-living N_2 fixers.
18. Define VAM.
19. What are phosphatases?
20. What is leghemoglobin?

SECTION—B

Answer any *five* of the following questions : 2×5=10

21. What is ultrafiltration?
22. How is lipase activity estimated?
23. What is the role of 'baffles' in fermentors?
24. What is continuous culture?
25. What is the chemical nature of starch?
26. What is the chemical nature of cellulose?
27. How is TOC estimated?
28. How is TDS increased in aquatic system?
29. What is a rhizosphere?
30. Name two plant-microbe symbiotic associations.

SECTION—C

Answer any *five* of the following questions : 5×5=25

31. What are downstream processes in fermentation? Explain how filtration is performed.

32. Discuss the role of microbes in bioethanol production.

33. Draw a diagram and explain about Airlift fermentor.

34. Compare and contrast the submerged and solid-state fermentation process.

35. What are the methods of immobilizing enzymes? Give examples.

36. Draw the structure of cellulose. Explain how cellulose is degraded by microbes.

37. How are microbes useful in treating sewage waste?

38. How are microbes used to check water quality?

39. Discuss the types and features of mycorrhizae associated with plants in detail.

40. Discuss the process of symbiotic biological N_2 (nitrogen) fixation.

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