



WEST BENGAL STATE UNIVERSITY
B.Sc. Honours 5th Semester Examination, 2022-23

BOTADSE03T-BOTANY (DSE1/2)

Time Allotted: 2 Hours

Full Marks: 40

*The figures in the margin indicate marks of question.
Candidates should answer in their own words and adhere to the word limit as practicable.*

1. Answer **all** questions briefly from the following: 1×16 = 16
- (a) Name a chemical agent used for cell disruption.
 - (b) Distinguish between trophophase and idiophase.
 - (c) What do you mean by rhizospheric microorganism?
 - (d) What is freeze drying?
 - (e) Name one fungus that form mycorrhizal association with higher plants.
 - (f) Name two common water contaminant bacteria that cause health hazard in human.
 - (g) Name a fungi used in bioremediation of heavy metals.
 - (h) Name one industrial product which is produced by aerobic non-aseptic fermentation.
 - (i) What is the role of sparger in fermenter?
 - (j) Mention one important character of industrially important microbial strain.
 - (k) What is TDS of water sample?
 - (l) Name the enzyme responsible for nitrogen fixation.
 - (m) What is leghaemoglobin?
 - (n) Name one 'indicator microbe' of potable water.
 - (o) Give an example of free living and symbiotic nitrogen fixing bacteria.
 - (p) Define arbuscular mycorrhizal colony.
2. Answer any **eight** questions from the following: 3×8 = 24
- (a) Describe the parts of a bioreactor with diagram.
 - (b) Compare solid state and submerged fermentation.
 - (c) Mention different methods used in microbial cell disruption.
 - (d) Describe the process of citric acid recovery in industrial system.
 - (e) Name different components of medium of bacterial culture.

- (f) Mention the advantages and disadvantages of enzyme immobilization.
- (g) What is COD? How it is measured? 1+2
- (h) Describe secondary wastewater treatment procedure emphasizing the role of microorganisms in the process.
- (i) Write a note on the process of isolation of root nodule bacteria from leguminous plant.
- (j) Write the steps involved in recovery of citric acid.
- (k) Write the steps involved in the application of glucose isomerase immobilized process.
- (l) Enumerate the different steps involved in downstream processing of a desired product.

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