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5 SEM TDC DSE BOT (CBCS) 4 (H)

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(Held in January/February, 2022)

BOTANY

(Discipline Specific Elective)

(For Honours)

Paper : DSE-4

(Industrial and Environmental Microbiology)

Full Marks : 53

Pass Marks : 21

Time : 3 hours

*The figures in the margin indicate full marks
for the questions*

1. Answer the following in very brief : 1×5=5

(a) What is bioremediation?

(b) Write the full form of BOD.

(c) Who discovered fermentation technique?

(d) Give example of a media used to cultivate fungi.

(e) What is enzyme immobilization?

(2)

2. Answer the following in short : $2 \times 4 = 8$

- (a) Mention one advantage of continuous fermentation.
- (b) Give example of cell disruption technique.
- (c) What is the working principle of centrifugation?
- (d) How can you determine the total dissolved solid (TDS)?

3. Write short notes on any *two* of the following : $3 \times 2 = 6$

- (a) Biological nitrogen fixation
- (b) Antibiotics
- (c) Arbuscular mycorrhiza

4. Answer the following : $4 + 4 + 5 + 5 = 18$

- (a) Write a note on bioremediation of contaminated soil.
- (b) "Mycorrhiza is used to reclaim soil fertility." Explain.
- (c) Write an explanatory note on downstream processes.
- (d) With suitable example, describe about the use of microorganism in controlling water pollution.

(3)

5. Write an account on enzyme immobilization and mention its advantages. $3 + 3 = 6$

Or

Describe about various types of micro-organisms that are traced for monitoring water quality. 6

6. Describe how ethanol is produced by fermentation process and mention some uses of ethanol. $7 + 3 = 10$

Or

Write an account on different types of bioreactors used in fermentation process. 10
