

(6 pages)

Reg. No. :

Code No. : 11018 E Sub. Code : FSBO 12

B.Sc. (CBCS) DEGREE EXAMINATION,
NOVEMBER 2024.

First Semester

Botany

Skill Enhancement Course – I – ENVIRONMENTAL
BIOTECHNOLOGY

(For those who joined in July 2024 onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. Hydrological factors refers to the
 - (a) Water only
 - (b) Air
 - (c) Soil only
 - (d) Water and soil
2. Acid rain is caused by
 - (a) Soil
 - (b) Water
 - (c) Plants and animals
 - (d) Atmospheric gases
3. What is the health effect of excess fluoride in drinking water?
 - (a) Fluorosis
 - (b) Toothaches
 - (c) Lung disease
 - (d) Intestinal infection
4. Which among the following is popularly called “Super bug”?
 - (a) *Bacillus subtilis*
 - (b) *Pseudomonas putida*
 - (c) *Agrobacterium tumefaciens*
 - (d) *Pseudomonas aeruginosa*
5. DDT is a major contributor to pollution because of
 - (a) It kills useful microorganisms
 - (b) It destroys valuable species of worms
 - (c) It is nonbiodegradable
 - (d) It interferes with pesticides

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6. The chemicals released due to unsustainable agricultural practices and cause soil pollution are

- (a) Phycochemicals (b) Chemical fertilizers
(c) Strontium-90 (d) Weedicides

7. At this stage of wastewater treatment, methanogenic microbes are the most significant

- (a) Sludge digestion
(b) Primary treatment
(c) Secondary treatment
(d) Biological oxidation

8. Bioremediation is the

- (a) usage of microbes to create new organisms
(b) usage of anaerobic bacteria to create new antibiotics
(c) usage of microbes to destroy environmental pollutants
(d) usage of aerobic bacteria to create new vaccines

9. Microbially catalyzed redox reaction leads to metal

- (a) Mobilization (b) Immobilization
(c) Reduction (d) Oxidation

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10. Which one of the following is not included in the mechanism of bioleaching?

- (a) Acidolysis (b) Complexolysis
(c) Redoxolysis (d) Hydrolysis

PART B — (5 × 5 = 25 marks)

Answer ALL questions choosing either (a) or (b).
Each answer should not exceed 250 words.

11. (a) Explain soil as an ecological factor.

Or

(b) Describe water as a component of the environment.

12. (a) Write short notes on the biological treatment of waste water.

Or

(b) How will you remove the heavy metals from water bodies?

13. (a) Discuss how pentachlorophenol in the environment is degraded scientifically.

Or

(b) Bring out the degradation pathway of polychlorinated biphenyl compounds found in the environment.

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14. (a) Define *in situ* bioremediation. Add a note on its advantages.

Or

- (b) List down the advantages and disadvantages of *ex situ* bioremediation.

15. (a) Write critical notes on bioleaching.

Or

- (b) Bring out the prospects of biocorrosion.

PART C — (5 × 8 = 40 marks)

Answer ALL questions choosing either (a) or (b).
Each answer should not exceed 600 words.

16. (a) Classify the types of pollution and add a note on their primary causes.

Or

- (b) Describe the air as a component of the environment.

17. (a) Is it possible to remove the metal contaminants using microbes? If so explain with example.

Or

- (b) Write an essay on anaerobic digestion.

18. (a) "Soil is contaminated by xenobiotics" – Substantiate the statement with example.

Or

- (b) Explain the degradation of phenols found in the environment.

19. (a) Examine the various strategies of bioremediation.

Or

- (b) "Phytoremediation offers promising advantages in environmental pollution control" – Justify the statement.

20. (a) Discuss the process of biomineralization.

Or

- (b) What do you mean by biofilms? How are they useful in environmental management?

