

Parvatibai Chowgule College of Arts and Science  
Autonomous

B.Sc. Semester End Examination, January, 2022

Semester: V

Subject: Biotechnology

Title: Environmental Biotechnology (Elective)

Duration: 2 Hours

Max. Marks: 45

Instructions: 1. All the questions are compulsory; however, internal choice is available.  
2. Figures to the right indicate maximum marks to the question.  
3. Draw neat labelled diagram wherever necessary.

Q1. Answer ANY THREE of the following: (09)

- Give an account of major air pollutants and their sources.
- Appraise the role of Environmental Biotechnology in pollution abatement (any three).
- Explain 'Activated sludge process' for the treatment of polluted water.
- Detail the mechanism of a typical bio-trickling filter for the treatment of polluted air.

Q2. Answer ANY TWO of the following: (12)

- With an example, explain the use of 'metabolic rating' as a method of pollution detection. Add a note on criteria for 'standard test organisms' used for pollution detection.
- Explain the concept of bio-indicator with an example each for water and air pollution.
- Distinguish between food chain and food web. Add a note on different ecological pyramids.

Q3. Answer ANY TWO of the following: (12)

- What is a super bug? Illustrate its use in treatment of wastes. Also, explain the term Co-metabolism with an example.
- What are the characteristics of a bio-pesticide? How is bio-lac produced from organic wastes?
- Define Biodegradation and explain biodegradation of any one xenobiotic compound.

Q4. Answer ANY ONE of the following: (12)

- Biosensors play an important role in pollution detection. Validate the statement with examples (any six).
  - Appraise your knowledge on 'Environmental Biotechnology' in converting non edible oil into a useful product.

OR

- High amount of sulphur in coal contributes to environment contamination. Propose a solution to circumvent this problem using your knowledge on 'Environmental Biotechnology'.
    - How do you appraise your knowledge of 'Cell Biology' in pollution monitoring?
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