



LOYOLA COLLEGE (AUTONOMOUS) CHENNAI – 600 034

B.Sc. DEGREE EXAMINATION

PLANT BIOLOGY AND PLANT BIOTECHNOLOGY

SIXTH SEMESTER – APRIL 2025



UPB 6503 – ECOLOGY AND ENVIRONMENTAL BIOTECHNOLOGY

Date: 04-30-2025

Dept. No.

Max. : 100 Marks

Time: 09:00 AM - 12:00 PM

SECTION A - K1 (CO1)

Answer ALL the Questions

(10 x 1 = 10)

1. Fill in the blanks

- The term for the role or function of a species within an ecosystem is -----.
- The primary function of ----- banks is to store and preserve genetic diversity.
- The process of preserving and fermenting animal feed is known as -----.
- Phycoremediation is particularly effective at addressing ----- contamination.
- is the process by which bacteria use enzymes to detoxify organic pollutants.

2. State whether the following statements are TRUE or FALSE

- The total amount of organic matter produced by photosynthesis in an ecosystem is productivity.
- In biodiversity conservation, "*in situ*" refers to conservation within urban areas.
- Methanol is a non-conventional energy resource.
- Factors like temperature and pH can influence the success of bioremediation.
- Compost or peat is used as the filter medium in bio-filters.

SECTION A - K2 (CO1)

Answer ALL the Questions

(10 x 1 = 10)

3. Choose the correct answer

- What term describes the pathway of energy transfer through trophic levels in an ecosystem?
a) Food web b) Energy cycle c) Ecological pyramid d) Food chain
- Which organization manages the International Board for Plant Genetic Resources (IBPGR)?
a) FAO b) UNESCO c) UNICEF d) WHO
- Which of the following is NOT a greenhouse gas associated with air pollution?
a) Carbon dioxide b) Methane c) Nitrous oxide d) Sulfur dioxide
- Bioremediation is the process of
a) Using chemicals to clean up pollutants b) Using living organisms to remove contaminants
c) Physically removing pollutants from the environment d) Burying pollutants underground
- Removal of metal contaminants from waste waters using microorganisms is
a) Biomining b) Biosorption c) Biodegradation d) Biosparging

4. Answer the following, each in about 50 words

- Define Biomagnification.
- What is *ex situ* conservation?
- List any 2 recalcitrant pollutants.
- Define mycoremediation.
- Mention the significance of biofilms.

SECTION B - K3 (CO2)

Answer any TWO of the following in 500 words

(2 x 10 = 20)

Draw diagrams / flowcharts wherever necessary

- Comment on the types of biodiversity.

6.	What is biogas? Describe the different steps involved in biogas production.
7.	Explain the techniques involved in removing oil spills by microbes.
8.	Write notes on biodegradation of any one xenobiotics you have studied.
SECTION C – K4 (CO3)	
	Answer any TWO of the following in 500 words (2 x 10 = 20) Draw diagrams / flowcharts wherever necessary
9.	Define ecosystem. Explain the structure and function of an ecosystem.
10.	Describe the concept of genetic diversity and its importance.
11.	Analyse the importance of recycling waste products in sustainable waste management.
12.	Distinguish between <i>in situ</i> and <i>ex situ</i> bioremediation.
SECTION D – K5 (CO4)	
	Answer any ONE of the following in 1000 words (1 x 20 = 20) Draw diagrams / flowcharts wherever necessary
13.	Describe the various strategies used for the conservation of biodiversity.
14.	Explain the causes, effects and control measures of air pollution.
SECTION E – K6 (CO5)	
	Answer any ONE of the following in 1000 words (1 x 20 = 20) Draw diagrams / flowcharts wherever necessary
15.	Discuss the type of reactors used in bioremediation.
16.	Elaborate on the Activated Sludge process and Rotating biological contactors.

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