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**BRAINWARE UNIVERSITY**

Library
Brainware University
398, Ramkrishnapur Road, Barasat
Kolkata, West Bengal-700125

Term End Examination 2025-2026
Programme – B.Sc.(BT)-Hons-2023
Course Name – Environmental Biotechnology
Course Code - BBT50204
(Semester V)

Full Marks : 60**Time : 2:30 Hours**

[The figure in the margin indicates full marks. Candidates are required to give their answers in their own words as far as practicable.]

Group-A

(Multiple Choice Type Question)

1 x 15=15

1. Choose the correct alternative from the following :

- (i) The term MSW means
- | | |
|----------------------------|---------------------------|
| a) Municipal Solid Waste | b) Manual Solid Waste |
| c) Municipal Salient Waste | d) Municipal Sewage waste |
- (ii) The gas which is not responsible for green-house effect is
- | | |
|-----------------|----------------------|
| a) CO | b) Hydrogen Sulphide |
| c) Water-vapour | d) Methane |
- (iii) An example of an abiotic component
- | | |
|-----------|-------------|
| a) Plant | b) Soil, |
| c) Animal | d) Bacteria |
- (iv) Which is the renewable exhaustible natural energy resource?
- | | |
|-------------|--------------|
| a) Coal | b) Petroleum |
| c) Kerosene | d) Biomass |
- (v) How does carbon monoxide affect the human body?
- | | |
|--|---|
| a) It does not allow binding of oxygen with haemoglobin | b) It reduces the surface area of the alveoli and disrupts gaseous transfers |
| c) It causes the liver to malfunction, increasing bile secretion | d) It reduces the body's tendency to absorb water thereby making us feel dehydrated |
- (vi) Infer the Most harmful cause of ocean water pollution is?
- | | |
|-------------------|-------------------------|
| a) Plastic waste | b) industrial effluents |
| c) Domestic waste | d) oil spills |
- (vii) Infer which of the following is the cause of biomagnification?
- | | |
|------------------------|-------------------------|
| a) Eutrophication | b) Detergent pollution |
| c) Pesticide pollution | d) Industrial pollution |
- (viii) Interpret Energy produced by hydel-power plant is
- | | |
|------------------------------------|--------------------------------|
| a) Non-polluting and non-renewable | b) Polluting and non-renewable |
| c) Non-polluting and renewable | d) Polluting and renewable |

- (ix) What is phytoremediation?
- a) The use of bacteria to clean up pollutants b) The use of plants to remove contaminants from the environment
- c) The use of enzymes to degrade toxins d) The use of fungi to break down pollutants
- (x) Bioleaching can be influenced by factors such as
- a) pH and temperature b) Soil type
- c) Climate zone d) None of these
- (xi) The role of nitrogen-fixing bacteria in soil is to
- a) Decrease fertility b) Fix atmospheric nitrogen
- c) Promote soil erosion d) Enhance acidity
- (xii) The primary component of biofertilizers is
- a) Microorganisms b) Chemical fertilizers
- c) Organic waste d) Heavy metals
- (xiii) An example of an algal biofertilizer is
- a) Azospirillum b) Spirulina
- c) Mycorrhizae d) Rhizobium
- (xiv) The main mechanism of bioleaching involves the production of
- a) Acids b) Bases
- c) Salts d) Gases
- (xv) Bioleaching can be applied to which of the following materials?
- a) Radioactive waste b) Coal
- c) Sand d) Plastic

Group-B

(Short Answer Type Questions)

3 x 5=15

2. Summarize the key enzymes involved in lignin biodegradation. (3)
3. Illustrate biogas production in microbes. (3)
4. State the list of sources of municipal solid waste management (3)
5. Explain the potential risk associated with GM crops. (3)
6. Illustrate the term bioaugmentation with examples. (3)

OR

Compile the different steps of primary waste water treatment (3)

Group-C

(Long Answer Type Questions)

5 x 6=30

7. Illustrate activated sludge process. (5)
8. State the methods used in in-situ bioremediation. (5)
9. Briefly summarize the techniques used for cleaning oil. (5)
10. Define biohydrogen and state why it is gaining importance in fuel industry. (5)
11. Define biosorption and biostimulation processes of bioremediation. (5)
12. Define sewage and explain its characteristics. (5)

OR

Estimate the functioning of aerated lagoons. (5)

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