

**G-3/351/22**

Roll No. ....

**III Semester Examination, January 2022**

**M.Sc.**

**BIOTECHNOLOGY**

Paper I

(Environmental Biotechnology)

Time : 3 Hours ]

[ Max. Marks : 80

**Note :** *All questions are compulsory. Question Paper comprises of 3 Sections. Section A is objective type/multiple choice questions with no internal choice. Section B is short answer type with internal choice. Section C is long answer type with internal choice.*

**SECTION A**

**1×8=8**

**(Objective Type/Multiple Choice Questions)**

*Choose the correct answer :*

1. Which of the following is a secondary pollutant ?
  - (a) Carbon monoxide
  - (b) Smog
  - (c) Carbon dioxide
  - (d) Fly Ash

P.T.O.

2. Acid rain is mainly a mixture of :  
 (a) Sulphuric Acid and nitric acid  
 (b) Hexane and methane  
 (c) Acetic acid and bromine  
 (d) Ascorbic acid and citric acid
3. The water pollution in the water is generally measured by :  
 (a) Amount of dissolved endocrine  
 (b) Amount of dissolved ozone  
 (c) Amount of dissolved nitrogen  
 (d) Amount of dissolved oxygen
4. Which of the following is best indicator of SO<sub>2</sub> pollution ?  
 (a) Bryophyte (b) Pteridophyte  
 (c) Lichen (d) Algae
5. A river with high BOD value is :  
 (a) Highly polluted (b) Highly productive  
 (c) Highly clean (d) None of these
6. IPCC stands for :  
 (a) Intergovernmental panel on climate change  
 (b) International pollution control committee  
 (c) Integrated pollution control command  
 (d) None of the above

7. Wavelength of UV-B is :  
 (a) 315-400 nm (b) 280-315 nm  
 (c) 320-330 nm (d) 350-450 nm
8. The process of converting waste to less toxic component is called :  
 (a) Bioremediation (b) Bioconversion  
 (c) Precepitation (d) None of these

**SECTION B****4×6=24****(Short Answer Type Questions)****Note : Answer the following questions in 250 words.****Unit-I**

1. Briefly describe the importance of water management in current scenario.

*Or*

Describe the different types of pollution in brief.

**Unit-II**

2. Describe the process and principle of trickling filter method of waste water treatment.

*Or*

Describe the process of treatment of waste water effluent of dairy and distillery.

### Unit-III

- 3. What is Biofuel ? Describe any *one* method of Biofuel production.**

*Or*

What do you mean by xenobiotics ? Briefly describe the role of microorganism in the treatment of xenobiotics.

## Unit-IV

4. Describe the process of methane production.

 $Or$ 

Briefly explain the role of different national organisation for pollution control and waste treatment.

## SECTION C

$$12 \times 4 = 48$$

**(Long Answer Type Questions)**

**Note :** Answer the following questions in 500 words.

## Unit-I

1. Describe the biotechnological method to control water pollution.

*Or*

What do you mean by environmental pollution ?  
Write the different types of pollution.

## Unit-II

2. Describe the process of treating waste water in brief.

*Or*

Write the principle and process of the following waste treatment method :

- (a) Rotating Disc
- (b) Anaerobic digestion and anaerobic filters

### Unit-III

3. Discuss the significance of micro-organism in the treatment of xenobiotics.

*Or*

Describe the process of bioremediation of contaminated soil and waste lands.

## Unit-IV

4. What do you mean by Global Environment problem ? Describe in brief.

*Or*

Describe the following in brief :

- (a) Composting      (b) Acid Rain