



Name : .....

Roll No. : .....

Invigilator's Signature : .....

**CS/B.SC(H)/MOL.BIO/MICRO-BIO/GE/BT/SEM-5/EVB-503/2012-13**

**2012**

**ENVIRONMENTAL BIOTECHNOLOGY**

Time Allotted : 3 Hours

Full Marks : 70

*The figures in the margin indicate full marks.*

*Candidates are required to give their answers in their own words as far as practicable.*

**GROUP - A**

**( Multiple Choice Type Questions )**

1. Choose the correct alternatives for any *ten* of the following :

10 × 1 = 10

- i) What is the harm from the depletion of Earth's ozone layer
  - a) the average temperature of earth's surface will increase gradually
  - b) the oxygen content of the atmosphere will decrease
  - c) increased amount of Ultra violet radiation will reach earth's surface
  - d) sea levels will rise as the polar ice caps will gradually melt.





- viii) In waste water treatment, primary treatment consists of
- physical separations only
  - chemical separations only
  - biological separations only
  - all of these.
- ix) Acid rain is caused by increase in the atmospheric concentration of
- ozone and dust
  - SO<sub>2</sub> and NO<sub>2</sub>
  - SO<sub>3</sub> and CO
  - CO<sub>2</sub> and CO.
- x) Addition of phosphates and nitrates into water leads to
- increased algal growth
  - nutrient enrichment ( eutrophication )
  - reduced algal growth
  - increase decomposer growth.
- xi) Asthma attack may be due to
- exposure to cold temperature
  - inhalation of air borne pollen
  - eating seasonal vegetables
  - all of these.
- xii) Contamination of water with sewage is indicated by
- E. coli*
  - Pseudomonas*
  - Leishmania*
  - Vibrio*.

### GROUP - B

#### ( Short Answer Type Questions )

Answer any *three* of the following.  $3 \times 5 = 15$

- Describe the process of waste water treatment.
- Write down about the types and effects of noise pollution.
- Describe about the source and effects of the following toxic element.
  - Lead
  - Arsenic
  - Mercury.
- Write the importance of super bugs in bioremediation.
- What is die-off reaction and how to prevent it ?



**GROUP - C**

**( Long Answer Type Questions )**

Answer any *three* of the following.  $3 \times 15 = 45$

7. a) Describe photochemical and London smog.  
b) Write down about eutrofication.  
c) What are the differences between the normal and El Nino condition and La Nina condition ?  
d) Describe walker condition.  $4 + 3 + 6 + 2$
8. a) Describe acid rain.  
b) Describe in details different types of sources and sink of oxides like NO<sub>x</sub>, SO<sub>x</sub> and CO<sub>x</sub> that causes the formation of acid rain.  
c) Write down about the adverse effects of acid rain on aquatic biota, terrestrial ecosystem, buildings and human beings.  $2 + 6 + 7$
9. "The control and optimization of bioremediation processes is a complex system of many factors". Justify. Define ex situ and in-situ bioremediation. Explain the merits and demerits of the both processes.  $5 + 5 + 5$
10. What is Montreal protocol ? Discuss the basic environmental laws for controlling pollution worldwide. Chipko Movement as an Example of Environmental Education — Discuss mentioning the salient features for the green movements of India.  $3 + 5 + 7$
11. What are xenobiotic compounds ? Describe the various types of recalcitrant xenobiotic compounds and the hazards from xenobiotics. What is biomagnifications and biougmentation ?  $5 + 6 + 4$
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