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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 :

 $10 \times 1 = 10$

- 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.

5259 Turn over

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- ii) Acid rain is formed due to contribution from the following pair of gases
 a) methane and ozone
 b) oxygen and nitrous oxide
 c) methane and sulpher dioxide
- d) carbon dioxide and sulpher dioxide.
 iii) The most serious environmental effect posed by hazardous wastes is
 - a) air pollution
 - b) contamination of ground water
 - c) increased use of land for landfills
 - d) destruction of habitat
 - e) none of these.
- iv) the Wildlife Protection Act enacted in India at the year
 - a) 1991

b) 1972

c) 1984

- d) 1961.
- v) The first people's movement for protecting environment in India was in 1970s
 - a) wild life protection movement
 - b) soil pollution save movement
 - c) Chipko movement
 - d) save rain water movement.
- vi) The first protocol sets out a schedule of freeze on consumption of CFCs was
 - a) EPA, 1986
 - b) Water prevention protocol, 1974
 - c) Air protocol, 1981
 - d) Montreal protocol, 1987.
- vii) Ozonation or chlorination of water is an example of type of effluent tratment.
 - a) Primary
- b) Secondary
- c) Preliminary
- d) Tertiary.

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- viii) In waste water treatment, primary treatment consists of
 - a) physical separations only
 - b) chemical separations only
 - c) biological separations only
 - d) all of these.
- ix) Acid rain is caused by increase in the atmospheric concentration of
 - a) ozone and dust
- b) SO₂ and NO₂
- c) SO 3 and CO
- d) CO 2 and CO.
- x) Addition of phosphates and nitrates into water leads to
 - a) increased algal growth
 - b) nutrient enrichment (eutrophication)
 - c) reduced algal growth
 - d) increase decomposer growth.
- xi) Asthma attack may be due to
 - a) exposure to cold temperature
 - b) inhalation of air borne pollen
 - c) eating seasonal vegetables
 - d) all of these.
- xii) Contamination of water with sewage is indicated by
 - a) E. coli

- b) Pseudomonas
- c) Leishmania
- d) Vibrio.

GROUP - B

(Short Answer Type Questions)

Answer any *three* of the following.

 $3 \times 5 = 15$

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

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(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 EI 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 NOx, SOx and COx 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

5259 4