



Name :

Roll No. :

Invigilator's Signature :

CS/M.Sc./SEM-4/MSGEN(EBT)-403/2012

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)

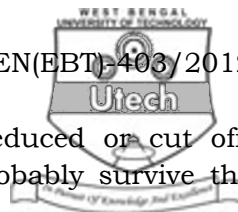
1. Choose the correct alternatives for any *ten* of the following :

10 × 1 = 10

- i) Which of the following is a prime health risks associated with greater UV radiation through the atmosphere due to depletion of stratospheric ozone ?
 - a) Damage to digestive system
 - b) Increased liver cancer
 - c) Neurological disorder
 - d) Increased skin cancer.
- ii) Which of the following is not as a consequence of global warming ?
 - a) Rising sea level
 - b) Increased agricultural productivity worldwide
 - c) Worsening health effects
 - d) Increased storm frequency and intensity.



- iii) A major in-stream use of water is for
 - a) producing hydroelectric power
 - b) dissolving industrial wastes
 - c) agricultural irrigation
 - d) domestic use.
- iv) The presence of high coliform counts in water indicate
 - a) contamination by human wastes
 - b) phosphorus contamination
 - c) decreased biological oxygen demand
 - d) hydrocarbon contamination.
- v) The stage in which the biological processes is used to purify water in a wastewater treatment plants is called
 - a) secondary sewage treatment
 - b) primary sewage treatment
 - c) wastewater reduction
 - d) biochemical reduction.
- vi) BNR is also referred as
 - a) biological nitrogen reduction
 - b) biological nitrogen removal
 - c) biological and natural resource
 - d) biological and natural remediation.
- vii) Global warming potential of tropospheric ozone is greater than CO₂.
 - a) 21 times b) 310 times
 - c) 17 times d) 4000 times.
- viii) As per Kyoto protocol the commitment period for reducing GHG emissions below the 1990 level is
 - a) 2008-2012 b) 2005-2010
 - c) 2004-2006 d) 2005-2020.



- ix) If solar radiation was drastically reduced or cut off, which group of organisms would probably survive the longest ?
- a) Producers b) Consumers
c) Decomposers d) Depositors.
- x) Which of the following pathogens may be present in raw sewage ?
- a) *S. typhi* b) *V. Cholerae*
c) Poliovirus d) All of these.
- xi) The scientific bodies involved in evaluation of the risk of climate change caused by human activity are
- a) IPCC b) WMO
c) UNEP d) all of these.
- xii) According to IPCC, 2007 report due to global warming on earth there will be an increase in
- a) drought b) tropical cyclone
c) extreme high tides d) all of these.

GROUP – B

(Short Answer Type Questions)

Answer any *three* of the following. 3 × 5 = 15

2. Give a brief account on soil microorganisms in the vadose zone.
3. Explain the role of hydroxyl radical in the atmosphere.
4. Write a short note on ozone layer depletion.
5. Briefly describe the significance of BOD, COD, DO and TIC.
6. What is membrane separation technology ? Describe the types of polymer membranes that you know. 3 + 2



GROUP – C

(Long Answer Type Questions)

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

7. Describe hydrological cycle. Elaborate how it is affected by medical pollution. $10 + 5$
8. What is meant by topsil ? How is it lost ? What will be the affect of the phenomenon ? $2 + 5 + 8$
9. In relation to global warming discuss the natural and human contribution to global warming. Mentioning the Kyoto protocol discuss the governmental action to reduce the Green-house gas emission. $9 + 6$
10. Clearly define the types of separation technology. Which one is the most suitable for water purification ? State the physicochemical properties and uses of that filter. $5 + 2 + 4 + 4$
11. Give an account on the preparation of industrially important microorganism. How microorganisms can be used to derive energy from environmental waste ? Briefly describe one such methodology of the recovery of wastes. $5 + 2 + 4 + 4$

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