

**M.Sc. (Final) Examination, 2001**  
**ENVIRONMENTAL SCIENCES**  
**Paper IV (ii)**  
**(Environmental Engineering and Biotechnology)**

Time: Three Hours  
Maximum Marks: 100

*Attempt **four** questions in all, selecting  
at least **two** questions from each section.  
All questions carry equal marks.*

**SECTION A**

1. What is B.O.D.? Describe various factors affecting the Industrial and Municipal waste water treatment. 25
  
2. Write brief notes on any **TWO** of the following:
  - (i) Disinfection of water.
  - (ii) Biofiltration.
  - (iii) Reverse osmosis and the use of this technique. 12.5+12.5
  
3. What do you understand by the term solar energy? Discuss in detail various technologies available for the utilisation of solar energy indicating the problems likely to encounter. 25
  
4. Write short notes on any **FIVE** of the following:—
  - (i) Concept of Acoustics
  - (ii) Demineralization.
  - (iii) Protection against Dampness.
  - (iv) Flooring and Roofing.
  - (v) Planning and Rural Housing.
  - (vi) Concept of Solar Passive Houses. 5+5+5+5+5

**SECTION B**

5. Describe in general the principles involved and tools used in various biotechnology techniques employed for maintaining cleaner environment. 25
  
6. Write detailed notes on any **TWO** of the following:
  - (i) Plant tissue culture for micro propagation of trees.
  - (ii) Applications of microbes as bioinsecticides.
  - (iii) Biosensors for detection of environmental pollutants. 12.5+12.5

7. Write notes on any **FOUR** of the following:
- (i) Conservation of Biodiversity.
  - (ii) Biohydrometallurgy and Biomineralization.
  - (iii) Recombinant DNA technology for improvement of bacterial strains.
  - (iv) DNA probing methods for detection of pathogenic bacteria.
  - (v) Immunofiltration. 6<sub>1/4</sub>+6<sub>1/4</sub>+6<sub>1/4</sub>+6<sub>1/4</sub>
8. What are oil spills? Discuss how they are caused and suggest methods to recover. How super bugs are useful for removal of the oil spills? 25