

**B.Sc. 6<sup>th</sup> Semester (Honours) Examination, 2021 (CBCS)**  
**Subject: Environmental Science**  
**Paper: DSE - 4**  
**(Environmental Biotechnology)**

Time: 3 Hours

Full Marks: 60

*The figures in the margin indicate full marks.*  
*Candidates are required to give their answers in their own words*

1. Answer *any six* of the following:

5×6 = 30

- i) What is RFLP and AFLP?
- ii) What are the characteristics of xenobiotic? Give example.
- iii) Briefly discuss the working mechanism of bioreactors.
- iv) Distinguish euchromatin and heterochromatin.
- v) Write a short note of t-RNA.
- vi) Differentiate between restriction endonuclease and restriction exonuclease.
- vii) What is ecological restoration?
- viii) Describe the benefits of biofertilizers.

2. Answer *any three* of the following:

10×3=30

- i) Give a brief account on bioremediation.
- ii) Describe the process of DNA replication in prokaryotes.
- iii) Describe the role of phosphate solubilizing bacteria in agricultural fields.
- iv) State the objectives and benefits of IPM.
- v) What is polymerase chain reaction (PCR)? State the importance of PCR in recombinant DNA technology.

**Paper: DSE – 4 (OR)**  
**(Solid Waste Management)**

1. Answer *any six* of the following:

5×6=30

- i) Briefly describe the techniques used in collection of solid wastes.
- ii) Mention the potential hazards of biomedical waste.
- iii) State the salient features of Integrated Waste Management (IWM).
- iv) Write down the different disposal processes of radioactive wastes.
- v) Briefly explain the various advantages and disadvantages of sanitary landfill.
- vi) How does groundwater pollution caused by landfill leachate can be prevented?
- vii) Describe the pyrolysis process with an example.
- viii) What is the National Action Plan for Solid Waste Management?

2. Answer *any three* of the following:

10×3 = 30

- i) Define 4Rs. Explain green techniques for waste management.
- ii) What is anaerobic digestion? Briefly describe the advantages and disadvantages of anaerobic digestion.
- iii) Illustrate the effects of discharge of solid wastes on water quality.
- iv) Explain the different types of industrial waste. Briefly discuss the industrial waste management techniques.
- v) Mention different colour coding and their applications in biomedical solid waste management.