



**WEST BENGAL STATE UNIVERSITY**  
B.Sc. Honours/Programme 2nd Semester Examination, 2022

**EVSHGEC02T/EVSGCOR02T-ENVIRONMENTAL SCIENCE (GE2/DSC2)**

Time Allotted: 2 Hours

Full Marks: 40

*The figures in the margin indicate full marks.  
Candidates should answer in their own words and adhere to the word limit as practicable.*

1. Answer any **ten** questions from the following: 1×10 = 10
- (a) Which is prone to alkaline hydrolysis DNA or RNA? Explain.
  - (b) What are 'cosmids'?
  - (c) What is denaturation of DNA?
  - (d) Mention the use of reverse transcriptase enzyme in Recombinant DNA Technology (RDT).
  - (e) Why microbes are used in bioremediation techniques?
  - (f) Why Xenobiotics are considered as toxic?
  - (g) What is nucleoside? Give one example.
  - (h) Describe the function of T-RNA.
  - (i) What do you mean by PGPR bacteria?
  - (j) Give at least one example of hazardous waste.
  - (k) What is metal leaching?
  - (l) What are 'transgenic plants'?
2. Answer any **five** questions from the following: 2×5 = 10
- (a) What are 'Transposons'?
  - (b) What is the role of surfactants in bioremediation?
  - (c) Give examples of one first generation and one second generation biofuels.
  - (d) What is abortive transcription?
  - (e) What is restriction endonuclease? Give example.
  - (f) Write down the name of at least four bioremediation technologies.
  - (g) What is a DNA Microarray?
3. Answer any **four** questions from the following: 5×4 = 20
- (a) Differentiate between any **two** of the following: 2  $\frac{1}{2}$  × 2
    - (i) Tertiary and Quaternary structure of proteins.
    - (ii) miRNA and siRNA.
    - (iii) A-DNA and Z-DNA.

- (b) Describe the cloverleaf structure of t-RNA.
- (c) Discuss the function of bioreactors in wastewater treatment schemes.
- (d) Describe the process of replication. Give a diagrammatic representation of replication in a generalised model. 3+2
- (e) What is the significance of using Biofertilizer in agriculture? How biofuel get produced? 3+2
- (f) Describe about the secondary structure of protein. Name three amino acids containing hydroxyl group in their side chain. 3+2

**N.B. :** *Students have to complete submission of their Answer Scripts through E-mail / Whatsapp to their own respective colleges on the same day / date of examination within 1 hour after end of exam. University / College authorities will not be held responsible for wrong submission (at in proper address). Students are strongly advised not to submit multiple copies of the same answer script.*

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