

**PH. D. (ENVIRONMENTAL  
SCIENCE) (PHDEV)**

**Term-End Examination**

**June, 2025**

**REVE-003 : ENVIRONMENTAL  
BIOTECHNOLOGY**

*Time : 3 Hours*

*Maximum Marks : 100*

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**Note :** Attempt any *five* questions. All questions carry equal marks.

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1. What is environmental biotechnology ? Describe the role and applications of environmental biotechnology for environmental monitoring and cleanup. 20
2. Define bioremediation. Describe various *ex-situ* bioremediation technologies with their potential advantages and limitations.

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3. Write short notes on any *four* of the following : 4×5=20
- (i) Hazardous and non-hazardous waste
  - (ii) Methanogenesis
  - (iii) Value added product from wastes
  - (iv) Intellectual property rights
  - (v) Microbial leaching of ores
4. What are PGPR ? Write potential applications of PGPR as biofertilizers and biocontrol agents for sustainable agriculture. 20
5. Describe various problems associated with improper wastewater discharge. Discuss various aerobic and anaerobic wastewater treatment technologies. 20
6. What is Phytoremediation ? Discuss various phytoremediation techniques, their application along with advantages and limitations. 20

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7. Write short notes on any **two** of the following : 2×10=20

- (i) Biofuels
- (ii) Composting
- (iii) Bioplastic
- (iv) Biomining

8. Design a research proposal selecting a suitable research topic from your course content. Discuss methodology, operation plan and expected outcome and significance in detail. 20

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