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REVE-003

Ph. D. (ENVIRONMENTAL SCIENCE)

(PHDEV)

Term-End Examination

December, 2024

REVE-003 : ENVIRONMENTAL BIOTECHNOLOGY

Time : 3 Hours

Maximum Marks : 100

Note : (i) Attempt any **five** questions.

(ii) All questions carry equal marks.

1. What is environmental biotechnology ? Discuss the meaning, scope and applications of environmental biotechnology. 20
2. What is bioremediation ? Describe various *in-situ* bioremediation techniques/technologies. Discuss advantages and limitations of each technology. 20

3. Write short notes on any *four* of the following :

5×4=20

- (i) Microbial removal of toxic metals
 - (ii) Bioplastics
 - (iii) Natural and xenobiotic compounds in wastes
 - (iv) Constructed wetlands
 - (v) Microbial metabolism
4. Give an overview of biological wastewater treatment. Describe various aerobic, anaerobic, and facultative treatment methods. 20
5. Define and classify wastes. Discuss the impacts of waste disposal in the environment. Give a brief account of composting and landfilling methods of waste disposal. 20
6. What are biosensors ? Describe various components of biosensors. Discuss the role of biosensors in environmental monitoring and pollution control. 20

7. Write short notes on any *two* of the following :

10×2=20

(i) Biofuels

(ii) Biofertilizers

(iii) Value added products from wastes

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

20

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