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5. (a) Write a note on phosphorus cycle. (5)
- (b) With the help of a suitable diagram describe the working of activated sludge process. (6)
- (c) Comment on sanitary landfill. (4)

(100)

[This question paper contains 4 printed pages.]

Your Roll No.....

Sr. No. of Question Paper : 4773

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Unique Paper Code : 2534001201

Name of the Paper : Microbes in Environment Management

Name of the Course : B.Sc. (Hon) Microbiology

Semester : IV (UGCF)

Duration : 2 Hours

Maximum Marks : 60

Instructions for Candidates

1. Write your Roll. No. on the top immediately on receipt of this question paper.
2. Attempt **any four** questions.
3. All questions carry **equal** marks.
4. Attempt **all parts** of a question together.

P.T.O.

1. (a) Why nitrogen is an essential nutrient? Discuss the process of nitrogen fixation highlighting the role of microbes. (2+4=6)
 - (b) Diagrammatically explain the role of trickling filter in sewage treatment. Mention any two microorganisms involved. (4+2=6)
 - (c) Comment on microbial degradation of 2,4-D. (3)
2. (a) Define BOD and COD and how both are related to waste water treatment? (6)
 - (b) What do you mean by denitrification and write its significance in nitrogen cycle. (3+3=6)
 - (c) Define bio-stimulation and write its importance in bioremediation. (1+2=3)

3. Write short notes on the role of microbes in the following (any three): (5×3=15)
 - (i) Mineral recovery
 - (ii) e-waste management
 - (iii) Chitin degradation
 - (iv) Bioremediation of petroleum contaminated soil
4. (a) What is composting? Discuss the various methods of composting for disposal of solid waste. (2+5=7)
- (b) What is a septic tank? How does it differ from Imhoff tank? (5)
- (c) Define ammonification and name one microbe involved. (2+1=3)