

1239

4

6. (a) Discuss Abiotic and biotic factors affecting oil degradation by microorganisms. (6)

(b) With the help of a diagram explain the method of bioslurping. (6)

(200)

[This question paper contains 4 printed pages.]

**Your Roll No.....**

**Sr. No. of Question Paper : 1239**

**I**

Unique Paper Code : 2533012007

Name of the Paper : Applications of Microbes in  
Bioremediation and Petroleum  
Industry

Name of the Course : **Microbiology**

Semester : V (Part-III)

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 **five** questions.
3. **All** questions carry equal marks.

P.T.O.

1239

2

1. Differentiate between the following (any three) :  
(4×3=12)

- (a) *In situ* and *Ex situ* bioremediation
- (b) Biosparging and Land firming
- (c) Biostimulation and Bioaugmentation
- (d) Enhanced oil recovery (EOR) and microbial enhanced oil recovery (MEOR)

2. Write short notes on (any three) : (4×3=12)

- (a) Composting
- (b) Biosensors for the detection of heavy metals
- (c) Biofilters for bioremediation
- (d) Oil zappers

1239

3

3. (a) Define biosurfactants. Discuss their role in oil recovery and write the advantages that they offer over chemical surfactants. (6)
- (b) Discuss the design and applications of a biofilm bioreactor in bioremediation. (6)
4. (a) Discuss alkane biodegradation by microorganisms. (6)
- (b) Define bioremediation and write its advantages and limitations. (6)
5. (a) What are the hazards of petroleum hydrocarbon contamination in the environment? (4)
- (b) How will you study metal tolerance by microorganisms in the lab. (6)
- (c) What is cometabolism? (2)

P.T.O.