

B.E. 7th Sem., Dec. 2022

Exam.Code:0911  
Sub. Code:6323

2122

B.E. (Bio-Technology) Seventh Semester  
BIO-711: Environmental Biotechnology

Time allowed: 3 Hours

Max. Marks: 50

**NOTE:** Attempt five questions in all, including Question No. 1 which is compulsory and selecting two questions from each Section.

x-x-x

1. Write briefly:

(1×10 = 10)

- a) What is TTGE?
- b) How grit chamber is different from sedimentation tank?
- c) What are the important gases for acid rain?
- d) How bioattenuation is different from bioaugmentation?
- e) What are the limitations of BOD test?
- f) How sludge retention time is different from hydraulic retention time?
- g) What is recirculation ratio?
- h) Why we need to add calcium carbonate in anaerobic treatment process?
- i) Which bacteria play important role in coal minning?
- j) What are the reasons of ozone layer depletion?

#### SECTION-A

2. A) What are various approaches of natural conservation and environmental ethics?  
B) What are the uses of genetically modified organism in xenobiotic compound remediation?  
(5, 5)
3. A) If the 3 day, 15°C BOD is 200 mg/l, what will be its 7 day BOD at 25°C? Sketch DO sag curve and describe the salient features.  
B) Draw oxygen sag analysis curve, write the basic Streeter – Phelps equation to describe and predict the behaviour of polluted stream. From this equation, determine critical travel time and critical deficit.  
(4, 6)
4. A) What are the design considerations of UASB? Explain with diagram. How will you calculate total height of a UASB??  
B) What are the advantage and disadvantages of bioremediation?  
(5, 5)

P.T.O.

(2)

**SECTION-B**

5. A) Explain Biological stabilization and factors controlling digestion of solid wastes.  
B) Various engineered systems have been developed for management of solid waste. Explain in detail. (5, 5)
6. A) What are IFT reduction, selective plugging, Huff and Puff techniques in MEOR?  
B) What are the standard methodologies available for handling biohazardous wastes? (5, 5)
7. Write short notes on,  
i) DGGE and TGGE  
ii) Use of biosensors in environmental Biotechnology (5, 5)

x-x-x