

**LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034**

**B.Sc. DEGREE EXAMINATION – PLANT BIOLOGY & PLANT BIO-TECH.**

**SIXTH SEMESTER – APRIL 2010**

**PB 6605 - ENVIRONMENTAL BIOTECHNOLOGY**

Date & Time: 17/04/2010 / 9:00 - 12:00

Dept. No.

Max. : 100 Marks

**PART – A (20 marks)**

**Answer ALL the questions**

**I. Choose the correct answer**

**(5 x 1 = 5)**

1. The gaseous biofuel made primarily by photolysis of water is  
a) Methane    b) Hydrogen    c) Carbon dioxide    d) Sulphur dioxide
2. Particles very close in density to water can be removed by  
a) Floatation    b) Sedimentation    c) Screening    d) Grinding
3. Genetically engineered bacteria used for degradation of xenobiotics is  
a) *Pseudomonas*    b) *Cytophaga*    c) *Staphylococcus*    d) *Caulobacter*
4. Injection of gas under pressure to volatilize contaminants is called  
a) Fracturing    b) Stabilisation    c) Composting    d) Sparging
5. The heavy metal predominantly found in tannery effluent is  
a) Chromium    b) Asbestos    c) Copper    d) Mercury

**II. State whether the following statements are True or False**

**(5 x 1 = 5)**

6. Products obtained from composting can be used as soil conditioners.
7. Activated sludge can reduce BOD by 99%.
8. Recalcitrance of organic pollutants increases with increasing halogenation.
9. Injection of necessary nutrients to stimulate growth of indigenous microorganisms is known as bioremediation.
10. Biosorption involves mechanisms like ion –exchange and chelation.

**III. Complete the following**

**(5 x 1 = 5)**

11. Hydrogen is a \_\_\_\_\_ fuel.
12. In Trickling filter, the porous bed is coated with \_\_\_\_\_.
13. Methanotrophs degrade a wide variety of chlorinated hydrocarbons by a process known as \_\_\_\_\_.
14. Removal of oily phase contaminants by vacuum extraction is called \_\_\_\_\_.
15. Low molecular mass cystein rich metal binding proteins are \_\_\_\_\_.

**(P.T.O.)**

**IV. Answer the following each in about 50 words**

**(5 x 1 = 5)**

16. Define vermicomposting.
17. What are the components of sewage?
18. What are recalcitrant compounds?
19. What is Stabilisation?
20. What is Biofilm?

**PART – B**

**Answer the following, each in about 500 words. Draw necessary diagrams**

**(5 x 7= 35 marks)**

21. a) Describe the causes of water pollution.  
(or)  
b) Outline the major steps in Biogas production.
22. a) Describe the clean up of oil spills using microbes.  
(or)  
b) Write notes on removal of heavy metals by Biosorption.
23. a) Describe the degradative mechanisms of Phenol.  
(or)  
b) Give an account of biofilters.
24. a) Comment on any two strategies of Bioremediation.  
(or)  
b) Discuss on the phytoremediation techniques for environmental clean up.
25. a) Highlight the causes of radionuclide pollution.  
(or)  
b) Describe the technology of Biocorrosion

**PART – C**

**Answer any THREE of the following questions, each in about 1200 words.**

**Draw necessary diagrams**

**(3 x 15= 45 marks)**

26. 'Hydrogen is a potential biofuel'. Discuss.
27. Explain the technologies in the treatment of industrial effluents.
28. Trace the pathways for the degradation of PCP and PCB.
29. Write an essay on Insitu & Exsitu bioremediation.
30. Write an essay on Bioleaching with reference to any two metals.

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