LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

M.Sc. DEGREE EXAMINATION – BIO TECHNOLOGY

THIRD SEMESTER – NOVEMBER 2009

BT 3813 - ENVIRONMENTAL BIOTECHNOLOGY

Date & Time: 07/11/2009 / 9:00 - 12:00 Dept. No. Max. : 100 Marks

PART – A

I. Choose the correct answer. (5 x 1=5)

1. Acid rain is due the oxides of ------
   a. S & N b. N & P c. N & C d. Ca & S

2. Aerobes attached on a moving substrate is ------
   a. Trickling filter b. RBC c. Packed bed reactors d. Batch reactor

3. The process of biodegradation of solid organic wastes to stable product is
   a. Composting b. Land farming c. Biosparging d. Biopile

4. Cytochrome P 450 is a ---------- enzyme.
   a. Monooxygenase b. Oxidase c. Deoxygenase d. Dioxygenase

5. Biofilms are held together by ---------- substances.
   a. Glycoprotein b. Glycolipid c. Mucopolysaccharide d. Glycocalyx

II. State whether the following statements are true or false.
If false give reason. (5 x 1=5)

6. PAN is one of the green house gases.
7. Algal bloom is as a result of N and P removal.
8. Bioventing is related with air purification.
9. Key enzyme for xenobiotics detoxification belongs to dehydrogenases.
10. Sulphuric acid is widely used in biomining processes.

III. Complete the following. (5 x 1 = 5)

11. Enzyme that binds higher concentrations of metals are known as ----------.
12. ---------- is a biological indicator of water pollution.
13. Bacteria responsible for denitrification is ----------.
14. The organism referred as Super bugs is ----------.
15. ---------- --------- is used for extracting gold.

IV. Answer the following each in about 50 words. (5 x 1=5)

16. Distinguish between Biomagnification and Eutrophication.
17. What is Bioflocculation?
18. Comment on Gratutous Metabolism.
19. What are recalcitrant chemicals?
20. Write notes on Biodegradable plastics.

PART – B

Answer any FIVE of the following each in about 350 words. Draw necessary diagrams. (5 x 8 = 40)

21. Enumerate various air pollutants, their effects and control measures in a tabular column.
22. Comment on the various bioreactors involved in the industrial effluent treatment.
23. With suitable illustration, explain activated sludge process.
24. Write notes on biomedical waste management.
25. Explicate the roles of nutrition in bioremediation.
26. Bring out the reactions involved in the detoxification of cyanide and urea.
27. Give the mechanism of microbial corrosion. State the remedies.
28. Explain the direct and indirect means of mineral leaching processes.

PART – C

Answer the following each in about 1500 words. Draw necessary diagrams. (2 x 20 = 40)

29. (a) Discuss the strategies involved in biofuel production.

Or

(b) Write notes on primary, secondary and tertiary treatment of waste water.

30. (a) Describe the types and various processes involved in Bioremediation.

Or

(b) With suitable examples and illustrations, explain xenobiotic degradation.

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