

B. Sc. DEGREE EXAMINATION APRIL 2016
BRANCH VI.A. ADVANCED ZOOLOGY & BIOTECHNOLOGY
SIXTH SEMESTER

COURSE : MAJOR CORE
PAPER : ENVIRONMENTAL BIOTECHNOLOGY
TIME : 3 HOURS **MAX. MARKS: 100**

SECTION – A

ANSWER ALL QUESTIONS : **(10 X 3 = 30)**

1. Expand: a.PCR b. TOC c. PAH
2. Define: a. Bioindicators
b. Co metabolism
c. Slops
3. Comment on Bioventing.
4. Give TWO examples of Bacteria used in extraction of Metals.
5. Differentiate between Bioplastics and Biopolymers.

6. MATCH THE FOLLOWING

- | | | |
|-----------------------|---|---------------------------|
| a. <i>Rhizobium</i> | - | Biological Analysis |
| b. Hydrogen | - | Flue gas |
| c. Acid Mine drainage | - | Xenobiotic |
| d. MPN | - | Bio Fuel |
| e. DDT | - | Yellowstone National Park |
| f. Incinerator | - | Biofertilizer |

7. FILL IN THE BLANKS

- a. _____ is a mixture of aerobic organisms produced by the treatment of wastes.
- b. Quantitative measures of the changes in the biological system that respond to exposure to xenobiotic substances leading to biological effects are _____.
- c. Synthetic organic compounds produced which have found their way into the environment are _____.
- d. _____ is the process of heating of oil to 300^oC to 500^oC in the presence of a catalyst which will break up the triglycerides to yield oil with properties close to Diesel.
- e. Nitrites are converted to _____ by *Nitrobacter*.
- f. Use of green plants to remove or render harmless contamination in soil or water is called _____.

8. STATE TRUE OR FALSE

- a. Distilleries produce milk products by a process of fermentation.
- b. Thuricide is a trade name for a biopesticide.
- c. Vesicular Arbuscular Mycorrhizae is an example for ectoendomycorrhizae.
- d. *Rhodospirillum rubrum* is a photosynthetic bacteria which helps in the production of Hydrogen.
- e. Biosorption is a method of removing metals from waste water.
- f. Oleophilic fertilizers proved successful in increasing rate of oil degradation in the Alaskan coast.

9. Differentiate

- a. Phytostabilisation and Phytovolatilization
- b. BOD and COD

10. What is the most successful application of Biosensors in Medical industry. Give TWO disadvantages of using Biosensors.**SECTION – B****ANSWER ANY FIVE QUESTIONS :****(5 X 6 = 30)**

11. Write a note on Biomarkers.
12. What are the processes involved in Phytoremediation? Explain Phytoextraction.
13. Draw a flow chart of the process of sewage treatment system. Add a note on the steps in Sewage treatment.
14. Discuss the role of *Bacillus thuringiensis* as a Biopesticide.
15. Elaborate on the process of Bioleaching.
16. Explain the *Ex situ* method of Bioremediation.
17. What are the different methods of sludge disposal? Explain Landfills and incinerators.

SECTION – C**ANSWER ANY TWO QUESTIONS :****(2 X 20 = 40)**

18. Give a detailed account on toxicity testing using biological materials.
19. Ethanol can be used as a fuel to replace petrol. Discuss.
20. What are the different forms of oil recovery? Explain Microbially Enhanced Oil Recovery.
21. Explain the Bioreactors used for the removal of gaseous pollutants.
