

**STELLA MARIS COLLEGE (AUTONOMOUS) CHENNAI 600 086**  
**(For candidates admitted during the academic year 2008 – 2009)**  
**SUBJECT CODE: ZL/MC/EB64**

**B. Sc. DEGREE EXAMINATION APRIL 2011**  
**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) EIA                      b) GEM                      c) UASB
2. Define:
  - a) Biosensors    b) Bioaugmentation                      c) Bioleaching
3. Comment on Activated sludge process.
4. Give two examples for bio-sorbents.
5. Differentiate between bioindicators and biomarkers.
6. Match the following:

a) Biopesticide	-	Zobell
b) MEOR	-	nitrifying bacteria
c) Nitrosomonas	-	Bt.
d) distillery wastewater	-	Azolla
e) Biofertilizer	-	PHB
f) Bioplastic	-	slops
7. Fill in the blanks
  - a) Toxicity of chemical mutagens is detected by \_\_\_\_\_ test.
  - b) Pseudomonas used in biodegradation of petrol is commonly called as \_\_\_\_\_.
  - c) The bacteria most frequently used in bioleaching is \_\_\_\_\_.
  - d) The only biotechnological in situ technology for treating contaminated soil is \_\_\_\_\_.
  - e) Anaerobic microbial digestion of organic matter generates \_\_\_\_\_ as the principal product.
  - f) The alga \_\_\_\_\_ is an indicator species for aquatic phosphorus pollution.

8. State whether true or false
- a) Conventional biofilters are also called percolation filters.
  - b) The main nitrogen compound in municipal wastewater is polyphosphates.
  - c) Use of micro-organisms for bio-accumulation of metals is called biosorption.
  - d) Recovery of metals using microbes is called mutabiosynthesis.
  - e) COD stands for Chemical Oxygen Demand.
  - f) Sludge is a flocculent microbial biomass
9. Differentiate:
- a) Anaerobic and aerobic composting.
  - b) In-situ and ex-situ bioremediation.
10. Comment on the utility of BOD and COD in environmental monitoring.

### **SECTION – B**

#### **ANSWER ANY FIVE QUESTIONS :**

**(5 X 6 = 30)**

- 11. Outline the physical methods of analysis of environmental samples.
- 12. Elaborate on the removal of phosphorus in wastewater treatment.
- 13. Give a brief outline about inorganic wastes in the environment.
- 14. Comment on the treatment of dairy effluents.
- 15. Write a note on Biopolymers.
- 16. Give an account of microbially Enhanced Oil Recovery.
- 17. Write notes on GMOs.

### **SECTION – C**

#### **ANSWER ANY TWO QUESTIONS :**

**(2 X 20 = 40)**

- 18. Give an account of Biosensors in environmental monitoring.
- 19. Describe the types of phytoremediation in pollution abatement and their significance.
- 20. Write an essay on biofertilizers and biopesticides.
- 21. Give an account of the different methods in the secondary treatment of conventional waste waters.

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