Reg. No. : | | | | | | | | | | | |

J 3078

B.E./B.Tech. DEGREE EXAMINATION, MAY/JUNE 2009.

Sixth Semester

Biotechnology

BT 1001 — ENVIRONMENTAL BIOTECHNOLOGY

(Regulation 2004)

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What is a biosurfactant?

2. What is transduction?

3. What is biotransformation?

4. What is cosmid?

5. What is denitrification?

6. What are psychrophiles?

7. What is cometabolism?

8. Give two advantages in the use of biofertilizers.

9. What is *ortho* ring fission?

10. Define eutrophication.

PART B — (5 × 16 = 80 marks)

11. (a) (i) What is ecological adaptation? Give any two examples. (6)

(ii) What are surfactants? Explain the biodegradation pathway of a surfactant. (10)

Or

(b) Explain the features of carbon cycle. What is the importance of carbon cycle in relation to global warming? (16)

12. (a) (i) What are dehalogenases? Explain the pathway of a chlorinated pesticide by microorganism. (10)

(ii) What are xenobiotics? What are the biological factors that play a role in their recalcitrance? (6)

Or

(b) Trace the pathway of biodegradation of benzene under aerobic and anaerobic conditions. (16)

13. (a) (i) Discuss the construction of ASP and trickling filter. (10)

(ii) What are the microorganisms that play a role in wastewater treatment? (6)

Or

(b) What are the different stages in the digestion of organic matter under anaerobic condition? Explain the role of microbes in the process. (16)

14. (a) Discuss the unit operations in the treatment of paper mill wastewater with a neat schematic. (16)

Or

(b) How do you apply rDNA technology in environmental pollution control? (16)

15. (a) How do you distinguish the non-hazardous and hazardous wastes? Discuss the methods of treatment of municipal solid wastes. (16)

Or

(b) (i) How do you use plasmid vector in DNA cloning? Explain with a neat schematic. (8)

(ii) Explain the nitrification and denitrification process in wastewater treatment. (8)

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