Register Number: ……..

B.TECH DEGREE EXAMINATIONS: MAY/JUNE 2013

Sixth Semester

BIOTECHNOLOGY

BTY207: Environmental Biotechnology

Time: Three Hours **Maximum Marks: 100**

Answer all the Questions:-

PART A (10 x 1 = 10 Marks)

1. Soil fertility is determined by which of the following?
   a) Geosmin b) Humic acid
   c) Itaconic acid d) Nitrogen
2. Association of microbes, wherein one derive benefit and other is neither benefited nor harmed is termed as
   a) Symbiosis b) Parasitism
   c) Commensalism d) Antagonism
3. The detergent that depends on the balance of the molecular weight of the hydrophobic to the hydrophilic portion is called
   a) HLB value b) HBL value
   c) BHL value d) LHB value
4. Which of the following comprises two benzene rings joined by two oxygen bridges.
   a) Dibenzo-*p*-dioxin b) Surfactant
   c) Oil d) Hydrocarbons
5. The nutrients that leads to eutrophication in lakes is
   a) Ca&Mg b) Ca & P
   c) P & Mg d) N&P
6. Clarrifloculation process reduces
   a) Total suspended solids b) Total soluble solids
   c) Total solids d) Oil & greasy substances
7. Which of the following is related to hazardous waste?
   a) RCRA b) RRCA
   c) CRCA d) ARCA
8. Bacteria that requires high concentration of CO_2 for growth is called as
   a) Psychrophiles b) Capnophiles
   c) Mesophiles d) Thermophiles

9. Shelf life of microbes refers to

a) Size of microbial cell
b) Viability of microbial cell
c) Stress of microbial cell
d) Resistance of microbial cell

10. Enzyme that makes the active toxin in Bt is

a) Cellulase
b) Pectinase
c) Protease
d) Chitinase

PART B (10 x 2 = 20 Marks)

11. Name the soil indicator organism of rain at nearby place and its compound.
12. List out the genes and proteins of nitrogen fixing bacteria.
13. Name two microbes that degrade xenobiotics.
14. Define teratogens.
15. What is the principle of turbidimetry?
16. What is the minimum D.O. required for life in water?
17. Differentiate sludge from slurry.
18. How wastewater is neutralized? Name two agents.
19. Distinguish metals and heavy metals with an example.
20. Define the terms: biosorption and bioaccumulation with an example.

PART C (5 x 14 = 70 Marks)

21. a) What is biological nitrogen fixation? Explain its principle, mechanism and applications.

(OR)

b) Explicate the antagonistic mechanism of soil microbes in detail.

22. a) Describe the chemistry, types and biological degradation of polyaromatic hydrocarbons.

(OR)

b) Why the DDT is banned? Mention its structure and its potential applications.

23. a) Distinguish activated sludge process and trickling filter method. Which is most efficient and why?

(OR)

b) What are solid wastes? Draft a method to tap energy from solid wastes.

24. a) How pharmaceutical wastes are treated using anaerobic waste treatment processes.

(OR)

b) Elucidate the treatment processes for leather industry wastewater.

25. a) How the chemical usages in agricultural practice and produce can be eliminated using biotechnological approaches.

(OR)

b) Justify the statement “Microbes can be used to generate electricity from waste”.

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