

STELLA MARIS COLLEGE (AUTONOMOUS) CHENNAI 600 086
(For candidates admitted during the academic year 2008-09 & thereafter)

SUBJECT CODE: BT/MC/EE54

B. Sc. DEGREE EXAMINATION, NOVEMBER 2011
BRANCH V (a) – PLANT BIOLOGY AND PLANT BIOTECHNOLOGY
FIFTH SEMESTER

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

SECTION -A

(18x1= 18)

Answer ALL questions:

(18 x 1=18 marks)

I. Choose the correct answer:

- The most stable ecosystem could be-
(i)Ponds (ii)Oceans (iii)Desert (iv)Forest
- Which one of the below is not a qualitative character:
(i) Floristic composition (ii) Periodicity (iii) Frequency (iv) Stratification
- Which of the following toxicity tests determine toxicity from exposure for a substantial portion of a subject's life?
(i)Chronic test (ii)Acute test (iii)Special test (iv)Subacute test
- Reducing the mobility of substances in the environment, for example, by limiting the **leaching** of substances from the **soil** is called:
(i)Phytoextraction (ii)Phytostabilisation (iii)Phytostimulation
(iv)Phytovolatilisation
- High BOD value in aquatic environment is indicative of-
(i)A pollution free system
(ii)A highly polluted system due to excess of nutrients
(iii)A highly polluted system due to abundant heterotrophs
(iv)A highly pure water with abundance of autotrophs

II. Fill in the blanks:

- Bioremediation of copper is brought about by _____.
- is the number of individuals of any species per sampling unit of occurrence.

8. The increase in concentration of a substance in certain tissues of organisms' bodies due to absorption from food and the environment is known as -----.
9. A -----is an analytical device for the detection of an **analyte** that combines a biological component with a physicochemical detector component.
10. ----- attempts to determine the concentration of the contaminant of concern at the target receptor.

III. Say True or False:

11. The pyramid of biomass will be inverted in the ecosystem of Forests.
12. Quantitative values of frequency, densities etc. do not give correct information on the distribution of a species.
13. **Biodilution** is a process where a pollutant gets smaller in concentration as it progresses up a food web.
14. Mycoremediation is a form of bioremediation in which **fungi** are used to decontaminate the area.

IV. Match the following:

- | | |
|----------------------------------|---------------------------------------|
| 15. Persistent organic pollutant | (i) <u><i>Pistia stratiotes</i></u> |
| 16. Biomagnification | (ii) DDT |
| 17. Hyperaccumulator | (iii) <u><i>Acidithiobacillus</i></u> |
| 18. Iron & Sulphur oxidizers | (iv) Hg fungicides |

Answer any 6 questions in not more than 50 words: (6 x 3=18 marks)

19. Define ecosystem?
20. What is food web?
21. What is Shannon's index of general diversity?
22. Define Bioaccumulation with an example.
23. What is Acute Toxicity?
24. What is 'in situ bioremediation'?
25. What is BOD?
26. What are Bioindicators? Give examples.
27. What is the Objective of undertaking a Risk Assessment?

Section-B

Answer any 4 questions in not more than 200 words each . Draw diagrams wherever necessary. : (4 x 6=24 marks)

28. Describe a pond ecosystem.
29. Describe Raunkiaer's biological spectrum to study a community.
30. Write short notes on: (a) Quadrat method (b) Transect method (c) Point method.
31. Describe the environmental impacts of organochlorine pesticides and add a note on remedial measures.
32. Explain briefly about Bioleaching with suitable examples.
33. Discuss Risk Characterisation.

Section – C

Answer any 2 questions in not more than 1000 words each. Draw diagrams wherever necessary: (2 x 20 = 40 marks)

34. Give a detailed account of terrestrial ecosystems.
35. Discuss in detail the role of microbes in biodegradation of xenobiotic compounds.
36. What is toxicity? Describe various methods of toxicity testing.
37. Enumerate the parameters, methods and significance of monitoring the quality of Environment.
