

STELLA MARIS COLLEGE (AUTONOMOUS) CHENNAI 600 086
(For candidates admitted during the academic year 2011 – 12 & thereafter)

SUBJECT CODE: 11BT/MC/EE54

B. Sc. DEGREE EXAMINATION, NOVEMBER 2015
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 marks)

I. CHOOSE THE CORRECT ANSWER: (5x1= 5)

1. Which ecological pyramid is always upright ?
[a] pyramid of biomass [b] pyramid of energy [c] pyramid of numbers
2. The food chain in which microorganisms break down organic matter is
[a] parasitic food chain [b] detritus food chain [c] consumer food chain
3. In a grassland ecosystem the second trophic level is occupied by
[a] plants [b] herbivores [c] carnivores
4. Which one of the following has no role in biomagnifications?
[a] animals [b] fishes [c] zooplankton
5. Which one of the following is not used in bioleaching?
[a] *Thiobacillus ferrooxidans* [b] *Bacillus licheniformis* [c] *Pseudomonas putida*

II. FILL IN THE BLANKS (4x1= 4)

6. ----- describes the space occupied by an organism and its functional role in the ecosystem.
7. The biological spectrum of a desert has maximum number of -----.
8. ----- is used in single species toxicity tests.
9. The maximum number of births produced per individual under ideal environmental conditions is known as -----.

III. TRUE/FALSE (5x1=5)

10. Natality and immigration lead to an increase in the density of population.
11. The line transect is generally used to study the vegetation in a forest.
12. The vertical layering encountered in a forest ecosystem is known as stratification.
13. Environmental Impact Assessment is mandatory for river valley projects.
14. Higher the LD50 value, more toxic is the chemical.

IV. GIVE ONE WORD FOR (4x1=4)

15. The beneficial or harmful effects of one plant on another by the release of chemicals.
16. The density per unit of habitat space actually colonized by the population.
17. Birth death ratio.
18. Form and morphological structure of vegetation.

V. ANSWER ANY SIX IN 50 WORDS: (6 x 3=18)

19. Define Homeostasis.
20. Illustrate food chain and food web.
21. Mention the different methods for sampling plant communities.
22. Define population density. How will you calculate the density of a species?
23. What is phytoremediation? Mention the different types.
24. What is the role of bioindicators in environmental monitoring?
25. Give the equation to calculate Shanon index. Point out the strength and weakness.
26. Differentiate bioaccumulation and biomagnifications with suitable examples.
27. What are the various acute oral toxicity tests performed?

SECTION - B**VI. ANSWER ANY 4 OUT OF 6 QUESTIONS IN 200 WORDS EACH: (4 x 6=24)**

28. Write notes on ecological pyramids.
29. Explain biotransformation with a suitable example.
30. What are biosensors? How are they useful?
31. Describe Raunkaier's life forms.
32. Explain the indices of species diversity.
33. Briefly discuss the stages in Environmental Impact Assessment.

SECTION - C**VII. ANSWER ANY 2 OUT OF 4 QUESTIONS IN 1000 WORDS EACH: (2 x 20=40)**

34. Describe the biotic components of an ecosystem with suitable examples from terrestrial and aquatic ecosystems.
35. Explain the different types of in-situ bioremediation and add a note on its advantages and disadvantages.
36. Give a detailed account of the quantitative analysis of plant communities.
37. Explain biodegradation of xenobiotics with a suitable example.
