STELLA MARIS COLLEGE (AUTONOMOUS) CHENNAI 600 086
(For candidates admitted during the academic year 2004 – 05 & thereafter)

SUBJECT CODE: BT/MO/SB64

B. Sc. DEGREE EXAMINATION, APRIL 2008
BRANCH V (a) – PLANT BIOLOGY AND PLANT BIOTECHNOLOGY
SIXTH SEMESTER

COURSE : MAJOR – OPTIONAL
PAPER : SOIL BIOLOGY AND BIOTECHNOLOGY
TIME : 3 HOURS **MAX. MARKS: 100**

SECTION – A

ANSWER ALL QUESTIONS

I Choose the correct answer : (6 Marks)

1. Plants absorb
   a) Combined water b) Capillary water c) Water vapour d) none of these
2. Microbes colonizing root region of a plant is called
   a) Phyllosphere b) Rhizosphere c) Hydrosphere d) Mesosphere.
3. Chloropicrin is a
   a) Fungicide b) Hematicide c) Bactericide d) Fertiliser.
4. Soil fertility is reduced by
   a) fungi b) denitrifying bacteria c) viruses d) earthworm
5. Phorphorus is an essential component in
   a) Nucleic acids b) Amino acids c) Cellulose d) chitin
6. Pseudopodia are present in
   a) Insects b) fungi c) earthworm d) protozoa.

II. Fill in the blanks: (6 marks)

7. Bacteria grow well in _____ soils.
8. Leghaemoglobin is present in root _____.
9. Conversion of ammonia into nitrites is called _____.
10. The root surface microbes are called _____ microorganisms.
11. Earthworm _____ the fertility of the soil.
12. _____ is a chemical substance which kills weeds.

III. State true or false: (6 marks)

13. Litter is the organic debris.
14. Sulphur is utilised by higher plants during photosynthesis.
15. NPV is a bacterial insecticide.
16. Cellulose is degraded into cellobiose and glucose.
17. Soil bacteria can degrade Pentachlorophene into non-toxic substance.
18. Addition of vermicompost to soils reduces growth of the plants.

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IV. Answer any six questions in 50 words each: (6x3=18)

19. Chemical composition of soil.
20. Putrefaction.
21. Root exudates.
22. Mycorrhiza.
23. Biofertilizers.
24. Symbiotic nitrogen fixation.
25. Pedon.
26. Vermiculture.
27. Microbial herbicide

SECTION - B

Answer any four questions in 200 words each. Draw diagrams wherever necessary. (4x6=24)

28. Give an account on Soil Profile.
29. Explain the decomposition of cellulose.
30. Outline the phosphorus cycle.
31. Write an account on the role of rhizosphere microorganisms.
32. Discuss the different uses of earthworm in soils.
33. Write briefly on Nematophagus fungi.

SECTION - C

Answer any two questions in 1000 words each. Draw diagrams wherever necessary. (2x20=40)

34. Describe in detail vermicomposting. Add a note on its uses.
35. Write an account on nitrogen cycle with a schematic representation listing the microbes for the same.
36. Illustrate with reactions, the manner in which organically bound sulphur is released by microbial dissimilation.
37. Give an account on bacteria being exploited for their use in biocontrol of insect pests of agriculture.

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