

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 2009

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. Protozoa inhabit
a) water b) air c) soil d) water and soil
2. The transformation of nitrates to Nitrogen is called
a) Nitrification b) Ammonification c) Denitrification
d) Nitrogen fixation
3. Mycorrhizal fungi are involved in the breakdown of
a) protein b) cellulose c) lignin d) lignin and cellulose
4. Composting can be used to promote the biodegradation of
a) Plastics b) Metals c) Glass d) organic matter
5. Solubilization of phosphates by plant roots and microbes takes place at
a) acid pH b) alkaline pH c) neutral pH d) pH between 2 – 10
6. BT is effective against
a) Fungi b) insects c) Viruses d) Protozoa

II. Fill in the blanks:

(6 marks)

7. Autotrophs can utilize _____ as the source of carbon.
8. One of the bacteria of prime importance in sulphur cycle is _____.
9. Region of the soil subject to the influence of plant roots is called _____.
10. Decomposed organic residue is referred to as _____.
11. Pectin degrading microbes belong to _____ group.
12. Retention of water in the soil is related to the _____ of the soil particles.

III. State true or false:

(6 marks)

13. Mineralization involves the use of soil microbes as biological agents.
14. Soil microbes are essential for the biogeochemical circles.
15. Rhizobium is a symbiotic nitrogen fixing bacterium.
16. Algal population of the soil exceeds the population of all other groups of soil flora.
17. Fungi are most abundant in the deeper layers of the soil.
18. Biological control is an important component of integrated Pest management programme.

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

19. Soil profile.
20. Rhizosphere.
21. VAM.
22. Azospirillum.
23. Nematophagous fungi.
24. Vermiwash.
25. Actinomycetes.
26. Soil temperature.
27. Microbial herbicides.

SECTION - B

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

28. Write brief notes on the benefits of Mycorrhizal association.
29. Give an account of cellulose decomposition.
30. Highlight the importance of Entomopathogenic fungi in crop protection.
31. Mention the importance of carbon cycle in soil maintenance
32. Highlight the role of soil water and pH on the soil environment.
33. Discuss the importance of rhizoplane microflora in plant growth.

SECTION - C

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

34. Explain the steps involved in Vermicomposting. Add a note on its importance in organic farming.
35. Discuss the importance of Bacterial and Viral pesticides in crop protection.
36. Explain the role of microbes in Nitrogen cycle.
37. Write an essay on Microbial transformation of Phosphorous and sulphur.
