

FOURTH SEMESTER B.Sc. DEGREE EXAMINATION, APRIL 2017

(CUCBCSS-UG)

Microbiology

MBY 4B 06—SOIL AND AGRICULTURAL MICROBIOLOGY

Time : Three Hours

Maximum : 80 Marks

Section A*Answer all questions.**Each questions carries ½ mark.*

1. The soil bacteria that are potential pathogen of humans are likely to be members of the genus :
 - (a) *Clostridium*.
 - (b) *Rhizobium*.
 - (c) *Azotobacter*.
 - (d) *Thiobacillus*.
2. The terrestrial species of luminescent bacteria are grouped under the genus :
 - (a) *Photobacterium*.
 - (b) *Vibrio*.
 - (c) *Photorhabdus*.
 - (d) *Clostridium*.
3. Banana bunchy top virus is a :
 - (a) + strand RNA virus.
 - (b) - strand RNA virus.
 - (c) SS DNA virus.
 - (d) ds DNA virus.
4. Among the following organisms which is a free-living nitrogen fixing bacteria :
 - (a) *Rhizobium sp.*
 - (b) *Frankia sp.*
 - (c) *Azotobacter sp.*
 - (d) *Bradyrhizobium sp.*
5. A soil in which no one particle size dominates is called _____.
6. The fungal component in lichens are called _____.
7. The non-discriminatory consumption of bacterial population by protozoan predators is called _____.
8. The actinorrhizal root nodules are pink in colour due to the presence of _____.
9. Name a common nematophagous fungi.
10. Name the mixture of CuSO_4 and slaked lime used as fungicide.
11. Name the interaction between microbial populations where both are benefitted.
12. Name the causative agent of Pappaya ring spot disease.

(12 × ½ = 6 marks)

Turn over

Section B

Answer all questions.

Each question carries 2 marks.

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| 13. <i>Agrobacterium tumefaciens</i> . | 14. Mineralization. |
| 15. Synergism. | 16. <i>Alternaria solani</i> . |
| 17. Leghaemoglobin. | 18. Hartig net. |
| 19. Rhizoplane. | 20. Heterocyst. |
| 21. Bti. | 22. Ammensalism. |

(10 × 2 = 20 marks)

Section C

Answer any six questions.

Each question carries 5 marks.

23. Aetiology and symptoms of wilt in cotton.
24. Animal Microbe interactions.
25. Endomycorrhiza.
26. Root nodule formation.
27. Phosphorus cycle.
28. Rhizosphere effect.
29. Control of infectious diseases in plants.
30. Soil fertility tests.

(6 × 5 = 30 marks)

Section D

Answer any two questions.

Each question carries 12 marks.

31. Write a note on soil formation. Discuss various factors affecting microflora of soil.
32. Discuss the advantages of biopesticides over chemical pesticides. Write a note on viral biopesticides.
33. Discuss the role of micro-organisms in carbon cycle and sulfur cycle.

(2 × 12 = 24 marks)