

D 41970

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Name.....

Reg. No.....

**FOURTH SEMESTER B.Sc. DEGREE EXAMINATION, APRIL 2018**

(CUCBCSS-UG)

Microbiology

MBY 4B 06—SOIL AND AGRICULTURAL MICROBIOLOGY

Time : Three Hours

Maximum : 80 Marks

**Section A**

*Answer all questions.*

*Each question carries ½ mark.*

1. Diazotrophs are bacteria that can perform \_\_\_\_\_
2. Early blight of potato is caused by fungi \_\_\_\_\_
3. Soil is formed from rock called \_\_\_\_\_
4. Apart from C, H, O and N \_\_\_\_\_ is an essential element for biosynthesis of nucleic acids.
5. Sulfur oxidation is the process by which micro-organisms convert \_\_\_\_\_ into elemental sulfur (S<sup>0</sup>)
6. *Fusarium oxysporum* cause \_\_\_\_\_ disease in cotton.
7. \_\_\_\_\_ is an example of nematophagous fungi.
8. All the members of a microbial population use the same resources and occupy the same ecological niche leads to negative interaction called \_\_\_\_\_
9. Photosynthesis is key step in \_\_\_\_\_ biogeochemical cycle.
10. \_\_\_\_\_ is a unidirectional relationship between populations in which one population benefits and the other one is unaffected.
11. Purple sulfur bacteria for anoxygenic photosynthesis use \_\_\_\_\_ instead of water.
12. \_\_\_\_\_ is responsible for the earthy smell of soil.

(12 × ½ = 6 marks)

**Section B**

*Answer all questions.*

*Each question carries 2 marks.*

Comment on :

13. Phylloplane.
14. Banana bunchy top.
15. Humus.

Turn over

16. *Bacillus thuringiensis*.
17. Phosphate solubilising bacteria.
18. Ectoparasite.
19. Predation.
20. Crown gall.
21. *Metarhizium*.
22. *Gloeocapsa*.

(10 × 2 = 20 marks)

### Section C

*Write short note on any six of the following.*

*Each question carries 5 marks.*

23. What is meant by denitrification? Discuss the impact of this on soil fertility.
24. Discuss the symptoms and disease cycle of cankers of citrus.
25. Discuss briefly about the bio fertilizer.
26. Discuss briefly about Lichens.
27. Discuss briefly about the structure and function of Heterocyst.
28. Discuss briefly about the advantages of bio insecticides.
29. Discuss the events of nitrification in nitrogen cycle. Why nitrification is important for agriculture?
30. What is meant by symbiotic nitrogen fixation? Discuss with the example of *Rhizobium*.

(6 × 5 = 30 marks)

### Section D

*Answer any two of the following questions.*

*Each question carries 12 marks.*

31. Discuss briefly about the symptoms, disease cycle and control measures of following crop diseases.
  - (a) Angular leaf spot of cotton.
  - (b) Red rot of sugarcane.
32. Briefly discuss on various types of soil. What are the factors influencing microbial growth and distribution in soil?
33. What are Mycorrhizae? Discuss the characteristic features of different types of mycorrhizae. Give note on its application in agriculture.

(2 × 12 = 24 marks)