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RNLKWC/B.Sc.-CBCS/IIIS/MCB/H/SEC1T/22

2022

Microbiology

[HONOURS]

(CBCS)

(B.Sc. Third Semester End Examination-2022)

PAPER-SEC1T

Full Marks: 40

Time: 02 Hrs

The figures in the right hand margin indicate marks

Candidates are required to give their answers in their own words as far as practicable

Illustrate the answers wherever necessary

[Biofertilizers and Biopesticides]

Group-A

Answer any five questions of the following:

5x2=10

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|--|-----|
| 1. What is the role Azola in rice cultivation? | 2 |
| 2. What is heterocyst? State its function. | 1+1 |
| 3. What are the typical characteristics of microbial pesticides? | 2 |
| 4. What is Sym plasmid? | 2 |
| 5. Write down the principle of CRYEMA test. | 2 |
| 6. What is meant by siderophore? | 2 |
| 7. How does dxygen is affect nitrogen fixation? | 2 |
| 8. What is meant by alternative nitrogenase? | 2 |

(2)

Group-B

Answer any four questions of the following: **4x5 = 20**

1. Discuss how *Bacillus thuringiensis* is used as biocontrol measure? 5
2. a) Write short notes on Nif genes.
b) Schematically represent the formation of root nodules.
 $2\frac{1}{2} + 2\frac{1}{2}$
3. a) Write down the components of the enzyme nitrogenase.
b) State the function of leg haemoglobin in N₂-fixation. 3+2
4. a) Name two viruses used as biocontrol agents.
b) Describe the fates of pesticides and herbicides on soil. 2+3
5. Explain the role of Mycorrhiza in agriculture. 5
6. Write down the mechanism of biological N₂ fixation with labelled diagram. 3+2

Group -C

Answer any one question: **1x10 = 10**

1. a) Discuss the mechanism of action of biocontrol agents.
b) How *Rhizobium* sp. are used as microbial inoculants for the production of biofertilizers? 5+5
2. a) What is VAM? Schematically represent the method of production of VAM.
b) What are carbamates ?
c) What is "Hartig net"? State its function. (1+3)+3+(1+2)