Reg. No. \_\_\_\_\_\_\_\_\_\_\_\_\_



**End Semester Examination – Nov / Dec – 2019**

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| **Code :** | **15BT3019** | **Duration :** | **3hrs** |
| **Sub. Name :** | **SOIL AND AGRICULTURAL MICROBIOLOGY** | **Max. Marks :** | **100** |

**ANSWER ALL QUESTIONS (5 x 20 = 100 Marks)**

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| **Q. No.** | **Sub Div.** | **Questions** | **Course**  **Outcome** | **Marks** |
| 1. | a. | Explain various mechanisms of microbial communities in soil enrichment. | CO1 | 10 |
| b. | Depict the contribution of S.Winogradsky, M.Beijerinck, and D.Ivanowsky in Agriculture. | CO2 | 10 |
| **(OR)** | | | | |
| 2. | a. | Illustrate Carbon cycle and the role of soil microorganisms in the decomposition of organic matter. Mention the importance of C : N ratio. | CO1 | 15 |
| b. | Describe various soil and environmental factors that affect soil microbial population. | CO2 | 5 |
|  |  |  |  |  |
| 3. | a. | Summarize the qualitative and quantitative estimation of soil microorganisms. | CO2 | 15 |
| b. | Explain the general characteristics and significance of microflora in soil fertility. | CO2 | 5 |
| **(OR)** | | | | |
| 4. | a. | Illustrate the distribution of microorganisms for the production of manure and compost. | CO3 | 15 |
| b. | Draw a neat sketch of carbon cycle. | CO1 | 5 |
|  |  |  |  |  |
| 5. | a. | Summarize the interaction of microbes with leguminous and non-leguminous plants. | CO2 | 12 |
| b. | Describe various types of soil – microbe interactions with R/S ratio. | CO2 | 8 |
| **(OR)** | | | | |
| 6. | a. | Define the terms phyllosphere, rhizoplane and rhizosphere. | CO1 | 6 |
| b. | Explain the biochemical mechanism of Nitrogen fixation by Rhizobium sp. | CO3 | 14 |
|  |  |  |  |  |
| 7. | a. | Describe any two biodegradable products obtained through bioconversion process. | CO3 | 14 |
| b. | Compare ectomycorrhizae and endomycorrhizae. | CO2 | 6 |
| **(OR)** | | | | |
| 8. | a. | Tabulate the soil enzymes and their catalyzed reactions. | CO1 | 5 |
|  | Describe the basis of using *Bacillus thuringiensis* as a biocontrol agent. | CO3 | 15 |
|  | | **Compulsory**: |  |  |
| 9. | a. | Evaluate the dispersion of plant pathogens. | CO2 | 5 |
| b. | Describe the interactions of *Agrobacterium tumefaciens* with a plant. Why is this plant pathogen potentially useful in biotechnology? | CO2 | 15 |