



# THE AMERICAN COLLEGE, MADURAI

(An Autonomous Institution Affiliated to Madurai Kamaraj University)

Re-accredited (2<sup>nd</sup> Cycle) by NAAC with Grade "A", CGPA – 3.46 on a 4-point scale

## Backlog Arrear Examination, March 2021

**Course Code: MIC 3424/3732**

**Max: 75 Marks**

**Course Title: Environmental & Agricultural Microbiology**

**Time: 3 Hours**

**Answer any FIVE**

**(5\*15=75)**

1. Define an ecological pyramid. Elaborate on its thermodynamic laws and types, with appropriate example and illustration.
2. Represent the soil as a microbial habitat, and describe the influence of soil physicochemical characteristics and horizons.
3. Depict the stratifications of ocean ecosystem, along with the aquatic microorganisms that play significant roles in the water column.
4. Sketch the life cycle of microorganisms in an aeromicrobiological pathway, and discuss the nature of bioaerosols, as well as microbial processes.
5. Present a detailed review of the different mechanisms of survival adapted by extremophilic microorganisms in challenging environmental conditions, with suitable examples.
6. Characterise the various steps in the legume-root nodule symbiosis
7. Provide a detailed account of the role of microorganisms in the various steps of wastewater treatment.