**ST JOSEPH’S UNIVERSITY, BENGALURU -27**

Registration Number:

Date & Session

**B.Sc. ENVIRONMENTAL SCIENCE– III SEMESTER**

**SEMESTER EXAMINATION: OCTOBER 2023**

**(Examination conducted in November/December 2023)**

**ES 322 – ENVIRONMENTAL MICROBIOLOGY AND ENVIRONMENTAL BIOTECHNOLOGY**

**[For current batch students and supplementary students of NEP-SJC (2021 batch)]**

**Time: 2 Hours Max Marks: 60**

**This paper contains ONE printed page and THREE parts**

***Instruction: Draw diagrams wherever necessary***

**PART – A**

**Answer any SIX of the following 6q X 2m = 12m**

1. Define environmental microbiology.
2. What is microbial symbiosis?
3. List any two microbes used in degradation of polymers.
4. Name any two water-related insect-vector diseases.
5. What are the advantages of GMOs?
6. What are recalcitrant compounds?
7. What are congeners?
8. Differentiate between composting and land farming.

**PART – B**

**Write explanatory notes on any FOUR of the following 4q X 7m = 28m**

1. Positive and negative microbial interactions
2. Role of bacteriophages in Biotechnology
3. Commensalism
4. Control measures of airborne microbial infections
5. Biodegradation of Uranium
6. Biosensors

**PART – C**

**Answer ALL the questions 2q X 10m = 20m**

1. Describe the structure and functions of *Aspergillus* sp.

**OR**

With a neat labelled diagram, explain the mechanism of Up-flow Anaerobic Sludge Blanket reactor.

1. Explain the Nitrogen cycle. Add a note on the role of microbes in it.

**OR**

Explain the role of biotechnology in pest control.