

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

**M.Sc. (MICROBIOLOGY) – II SEMESTER**

**SEMESTER EXAMINATION: APRIL 2023**

**(Examination conducted in May 2023)**

**MBDE 8621: ENVIRONMENTAL MICROBIOLOGY**

**(For current batch students only)**

**Time- 2 hours Max Marks-50**

**This paper contains 2 printed page and four parts**

**I. Answer any Five of the following. 5X3=15**

1. Explain the functioning of any one volumetric air sampler.
2. What is experimental evolution?
3. What is retention time of a lake? How does it determine the health of a lake?
4. Give a brief outline of the BIS standard for packaged mineral water.
5. Stating one example explain how a biological element can be used in sensing the environment.
6. Explain Amensalism and give one example.
7. Give three examples of how human microbiome affects human health positively.
8. **Answer any Two of the following. 2X5=10**
9. Explain the mechanism of Type1 hypersensitivity.
10. Write a note on the Preliminary treatment of sewage water and state its importance.
11. Illustrate the role of microorganisms in degradation of cellulose and lignin.

**III. Answer any Two of the following. 2X10=20**

1. Write in one or two sentences on the following:

a. Pollen shapes, b. Pre-impinger, c. Effluent plume, d. Bioaccumulation, e. Metagenomics

1. Give a detailed account of symbiotic Nitrogen fixation.
2. List the different types of *in-situ* bioremediation techniques. Elaborate on any three of them.

**IV. Answer the following. 1X5=5**

1. Study the pattern of the 4 thermocline curves given below and designate which of the thermoclines belong to which season/month of the year in a lake that is situated in northern hemisphere. Explain the thermoclines and justify your answer.

