

Registration Number:

Date & session:

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

**M.Sc. (MICROBIOLOGY) – 2nd SEMESTER**

**SEMESTER EXAMINATION: APRIL 2024**

**(Examination conducted in May/June 2024)**

**MBDE 8621- ENVIRONMENTAL MICROBIOLOGY**

**(For current batch students only)**

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

**This paper contains 2 printed pages and 4 parts**

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

1. Explain the functioning of the Andersen’s air sampler.
2. Name the causative organism of Diphtheria and give symptoms of the disease.
3. List the causes for coral bleaching.
4. Hardy oocysts containing 4 sporozoites were identified in a patient’s stool sample. What infection should it be? Give 2 features of this organism.
5. Outline the effects of the gut microbiome on humans.
6. Briefly explain the working of a fluidized bed incinerator.
7. What is the importance of biodegradability testing? Give the standards for the same.
8. **Answer any Two of the following. 2X5=10**
9. Discuss the molecular mechanism of how allergy manifests.
10. Draw a diagram of a modern sanitary landfill and explain its importance.
11. Elucidate different methods of treating marine oil spills.

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

1. What is secondary treatment of waste water? Elaborate on any two methods.
2. Discuss an environment friendly method for extracting valuable metals from a low-grade ore. Write notes on the different techniques which can be applied.
3. Stating appropriate examples explain the different negative microbial interactions.

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

1. The soil in an around an industrial belt has got contaminated with aromatic hydrocarbons. The depth of the contaminants has reached few meters but hasn’t reached the ground water table. The environment around is fairly hot and the soil is uniform throughout and is unsaturated.

a. Which kind of treatment would be best suited and cost effective to remediate the soil and why? Explain the technique. (3)

b. Had the contamination reached the groundwater what treatment would you have suggested? (2)