

Date:07-03-2022

Registration number:

ST. JOSEPH’S COLLEGE (AUTONOMOUS), BENGALURU-27

B.Sc. MICROBIOLOGY - V SEMESTER

SEMESTER EXAMINATION: OCTOBER 2021

(EXAMINATION CONDUCTED IN MARCH 2022)

**MB 5218 – Agricultural and Environmental Microbiology**

Time- 2 ½ hrs Max Marks-70

This question paper contains 2 printed pages and four parts

1. **Answer any Five of the following 5X3=15**
2. Mention the applications of biogas.
3. What is microbial leaching?
4. What are the characteristics of potable water?
5. List any 3 airborne infections and their respective causal agents.
6. How can microorganisms aid in detecting fecal contamination of water?
7. What is bioremediation? Name some microorganisms used for the same.
8. Compare bioinoculants and chemical fertilizers.
9. **Answer any Five of the following 5X5=25**
10. Elaborate on the use of fumigants for controlling plant diseases.
11. Explain the microbial degradation of Pectin.
12. Briefly discuss the production and uses of *Rhizobium* as a biofertilizer.
13. Give a summary on mycorrhizae and their significance.
14. Describe any one method of secondary waste water treatment.
15. Discuss phosphate solubilisation and its microbial transformation.
16. Name the causal agent of citrus canker. Add a note on its symptoms, transmission and prevention.
17. **Answer any Two of the following 2X10=20**
18. a. Explain the construction and principle of Burkad’s Sampler. **(5)**

b. Comment on the significance of biological indicators of pollution. **(5)**

1. Discuss the mass production of viral biopesticides, their mode of action and applications.
2. Provide an account of the nitrogen cycle.
3. **Answer the following 1X10=10**
4. Few drinking water samples from selected water distribution centres have been sent to a laboratory for bacteriological analysis. Find the results summarised in the following table.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Sample no.** | **No. of tubes giving a positive reaction** | | | **MPN/100ML** |
|  | **5 of 10ml** | **5 of 1ml** | **5 of 0.1ml** |  |
|  |  |  |  |  |
| I | 5 | 3 | 2 | 140 |
| II | 0 | 0 | 0 | <2 |
| III | 3 | 2 | 1 | 17 |
| IV | 5 | 5 | 5 | >1800 |

1. What conclusion can you draw about the quality of the tested water samples, based on the given results? Justify your answer. **(5)**
2. What will be your next step in analysing the water quality of the given samples? **(3)**
3. Comment on the significance of this test. **(2)**