

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-III (NEW) EXAMINATION – SUMMER 2024

Subject Code:3131302

Date:16-07-2024

Subject Name: Environmental Microbiology & Bioremediation

Time:10:30 AM TO 01:00 PM

Total Marks:70

Instructions:

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. Simple and non-programmable scientific calculators are allowed.

- Q.1** (a) Define & explain: (i) Disinfection (ii) Sterilization (iii) Antimicrobial agent **03**
(b) Write a short note on Whittaker five kingdom classifications. **04**
(c) Explain the complete procedure to perform MPN test for water. **07**
- Q.2** (a) Differentiate between Animal Cell & Plant Cell. **03**
(b) Give different stages of bacterial growth curve and explain about each stage. **04**
(c) Write a short note on Ethanol production using microbes. **07**
- OR**
- (c) Explain the procedure for production of Lactic Acid. **07**
- Q.3** (a) Enlist the different types of media used in microbiology. **03**
(b) Differentiate between Prokaryotes and Eukaryotes. **04**
(c) Describe working of Transmission Electron Microscopy in detail. **07**
- OR**
- Q.3** (a) Differentiate between stain & dye. **03**
(b) What is the importance of microbiology in Environmental engineering field? **04**
(c) Differentiate between Light Microscope & Electron Microscope. **07**
- Q.4** (a) Describe the effect of the fungi in environment. **03**
(b) Enlist and explain any two physical agents for control of Microbes. **04**
(c) Enlist the diseases caused by Fungi and explain the symptoms, treatment and prevention of any one disease in detail. **07**
- OR**
- Q.4** (a) Explain the importance of protozoa in environment. **03**
(b) Enlist and explain any two chemical agents for control of Microbes. **04**
(c) Enlist the diseases caused by Protozoa and explain the symptoms, treatment and prevention of any one disease in detail. **07**
- Q.5** (a) Differentiate between Pasteurization & Lyophilization. **03**
(b) Explain the role of microbes in bioremediation. **04**
(c) By applying the concept of Bioremediation, write down steps for the In situ bioremediation for the contaminated soil **07**
- OR**
- Q.5** (a) Differentiate between Antiseptic and Sanitizer. **03**
(b) Write a short note on bioremediation and discuss its constraints and priorities. **04**
(c) Write a short note: Wastewater Bioremediation. **07**
