

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-III (NEW) EXAMINATION – WINTER 2021****Subject Code:3131302****Date:17-02-2022****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

	Marks
Q.1 (a) What is Virus?	03
(b) Explain the scope of microbiology.	04
(c) Write a short note on “History of Microbiology”.	07
Q.2 (a) Explain the importance of protozoa in environment.	03
(b) Explain the beneficial and harmful effects of Fungi on environment.	04
(c) Explain the major characteristics of microorganisms.	07
OR	
(c) Classify the types of Bacteria.	07
Q.3 (a) Enlist the different types of media used in microbiology.	03
(b) Give the classification of Viruses based on morphology and structure.	04
(c) Write a short note on Lactic acid production using microbes.	07
OR	
Q.3 (a) What is pure culture?	03
(b) Give the classification of Algae.	04
(c) Write a short note on Ethanol production using microbes.	07
Q.4 (a) Enlist chemical agents for control of Microbes.	03
(b) Explain working principle of Fluorescence Microscopy.	04
(c) Write down steps for the Ex-situ bioremediation for the contaminated wastewater.	07
OR	
Q.4 (a) Enlist physical agents for control of Microbes.	03
(b) Explain the procedure to estimate the MPN of water.	04
(c) By applying the concept of Bioremediation, write down steps for the In-situ bioremediation for the contaminated soil.	07
Q.5 (a) Differentiate between Sterile and Disinfected	03
(b) Explain the symptoms, treatment and prevention of any one disease caused by Bacteria.	04
(c) Explain Phytoremediation process for Bioremediation.	07
OR	
Q.5 (a) Differentiate between Antiseptic and Sanitizer	03
(b) Explain the symptoms, treatment and prevention of any one disease caused by Virus.	04
(c) Explain Land farming process for Bioremediation.	07
