

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE- SEMESTER-III (NEW) EXAMINATION – WINTER 2020

Subject Code:3131302

Date:09/03/2021

Subject Name:Environmental Microbiology & Bioremediation

Time:10:30 AM TO 12:30 PM

Total Marks:56

Instructions:

1. Attempt any FOUR questions out of EIGHT questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

	Marks
Q.1 (a) Define the following terms (i) Microbiology (ii) Prokaryotic organism. (iii) Eukaryotic organism.	03
(b) Draw neat sketch of Bacterial cell and label all the important parts.	04
(c) Discuss about the role of microorganism in field of Environmental Engineering.	07
Q.2 (a) Draw the Bacterial Growth Curve and explain about each stage.	03
(b) State the classification of Microscopes.	04
(c) Explain working principle of Transmission Electron Microscopy.	07
Q.3 (a) Differentiate between stain & dye	03
(b) Write the importance of protozoa in brief	04
(c) What is pure culture? Prepare a list of different techniques for isolation of pure culture and explain each method.	07
Q.4 (a) Give the classification of fungi	03
(b) Differentiate Gram positive and Gram negative bacteria.	04
(c) Give the classification of viruses with respect to their shape and types. Also enlist the typical diseases caused by virus.	07
Q.5 (a) Highlight the importance of MPN test in drinking water.	03
(b) Differentiate between Bright field and dark field microscopy.	04
(c) Enlist the diseases caused by bacteria and explain the symptoms, treatment and prevention of any one in detail.	07
Q.6 (a) Differentiate between Antiseptic and Sanitizer	03
(b) Enlist the various chemical agents used for the control of microbes.	04
(c) Explain the complete procedure to perform MPN test for water.	07

- Q.7** (a) Define the following terms (i) Bioremediation (ii) pasteurization (iii) Sterilization **03**
- (b) State the different characteristics of an ideal disinfectant. **04**
- (c) Write a short note: In-situ bioremediation of soil **07**
- Q.8** (a) Explain the role of algae in environment? **03**
- (b) Enlist the beneficial and harmful effects of Fungi on environment? **04**
- (c) Write a short note: Wastewater Bioremediation **07**