

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY
BE –SEMESTER III (NEW) EXAMINATION- WINTER 2018**Subject Code:** 2131302**Date:** 01/12/2018**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.

		MARKS
Q.1	(a) What do you mean by Bioremediation? Explain Fundamental principle of Bioremediation.	03
	(b) Explain the scope of microbiology in the field of Environmental Engineering.	04
	(c) Give brief classification of Microorganisms.	07
Q.2	(a) Compare different types of microscopy.	03
	(b) Enlist and explain factors affecting antimicrobial action.	04
	(c) Explain working principle of Transmission Electron Microscopy.	07
	OR	
	(c) Enlist and explain physical agents for control of Microbes.	07
Q.3	(a) Write a short note on role of microbes in Industry and Food.	03
	(b) Enlist and explain the different types of media used in microbiology.	04
	(c) With the help of neat sketch explains Bacteriophages. (Bacterial viruses)	07
	OR	
Q.3	(a) Explain the role of microorganisms in Sewage Treatment.	03
	(b) Differentiate between Gram positive Bacteria and Gram Negative Bacteria.	04
	(c) Write a Case study on innovative Bioremediation treatment technologies.	07
Q.4	(a) Differentiate between Antiseptic and Sanitizer.	03
	(b) Discuss the advantages and disadvantages of Bioremediation.	04
	(c) Write a process step for the Ex-situ bioremediation of Groundwater.	07
	OR	
Q.4	(a) Explain the beneficial and harmful effects of Fungi on environment.	03
	(b) Give the classification of Viruses based on morphology and structure.	04
	(c) Write a process step for the In-situ bioremediation of Soil.	07
Q.5	(a) Highlight the importance of MPN test in drinking water.	03
	(b) Explain about the Bacterial Structures, Size, Shape and arrangement of Bacterial cells.	04
	(c) Enlist and Explain 3 types of test to estimate the MPN of water.	07
	OR	
Q.5	(a) What is the role of algae in environment?	03
	(b) Explain the importance of protozoa in environment.	04
	(c) Enlist the diseases caused by virus and explain the symptoms, treatment and prevention of any one in detail.	07
