

# GUJARAT TECHNOLOGICAL UNIVERSITY

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

Subject Code: 3131302

Date: 21-11-2024

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.

		Marks
Q.1	(a) Give the classification of bacteria.	03
	(b) Give the detailed difference between Prokaryotes & Eukaryotes.	04
	(c) Enlist and explain various chemical agents for control of microorganisms.	07
Q.2	(a) Explain the scope of microbiology.	03
	(b) Differentiate Gram positive and Gram negative bacteria.	04
	(c) Discuss about the role of microorganism in field of Environmental Engineering.	07
	OR	
	(c) Draw the Bacterial Growth Curve and explain about each stage.	07
Q.3	(a) Differentiate between stain & dye.	03
	(b) Differentiate between Bright field and dark field microscopy.	04
	(c) Give the classification of viruses with respect to their shape and types. Also enlist the typical diseases caused by virus.	07
	OR	
Q.3	(a) List out the various cultural methods	03
	(b) Explain the working of electron microscope with neat sketch.	04
	(c) Enlist the diseases caused by bacteria and explain the symptoms, treatment and prevention of any one in detail.	07
Q.4	(a) Describe the effect of the fungi in Environment.	03
	(b) Differentiate between In-situ Bioremediation and Ex-situ Bioremediation.	04
	(c) By applying the concept of Bioremediation, write down steps for the In situ bioremediation for the contaminated soil.	07
	OR	
Q.4	(a) Give the classification of Algae.	03
	(b) Differentiate between biodegradation and bioremediation.	04
	(c) Explain Phytoremediation process for Bioremediation.	07
Q.5	(a) Differentiate between Antiseptic and Sanitizer.	03
	(b) Conceptualize the role of microbes in Industry.	04
	(c) Explain the procedure for production of Lactic Acid.	07
	OR	
Q.5	(a) Enlist various physical agents for control of microorganisms.	03
	(b) Conceptualize the role of microbes in Sewage.	04
	(c) Explain the complete procedure to perform MPN test for water.	07

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