Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–III • EXAMINATION – WINTER • 2014

Subject Code: 2131302 Date: 01-01-2015

Subject Name: Environmental Microbiology and Bioremediation

Time: 02.30 pm - 05.00 pm Total Marks: 70

Instructions:

1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

Q.1	**(a)**	Discuss the differences between prokaryotic and eukaryotic cells	**07**
	(b)	Enlist the major characteristics of microorganisms and explain any two in brief	**07**
Q.2	**(a)**	Define: numerical aperture, limit of resolution, magnification, fluorescene	**07**
	(b)	Name the staining techniques used in microbiology along with the applications	**07**
		OR	
	(b)	Compare different types of microscopy	**07**
Q.3	**(a)**	Explain with a sketch: bacterial growth curve	**07**
	(b)	Give the classification of Viruses based on morphology and structure	**07**
		OR	
Q.3	**(a)**	Draw a typical bacterial cell and identify all parts.	**07**
	(b)	Explain the generalized scheme of microbial degradation of the organic constituents in sewage	**07**
Q.4	**(a)**	Write a short note: Products of industrial fermentation	**07**
	(b)	Enlist the diseases caused by bacteria and explain the symptoms, treatment and prevention of any one in detail.	**07**
		OR	
Q.4	**(a)**	Enlist the major groups of chemical antimicrobial agents. Explain practical applications and mode of action of any one in detail	**07**
	(b)	Write a short note: HEPA filters	**07**
Q.5	**(a)**	Explain the role of microbes in bioremediation	**07**
	(b)	Enlist advantages and disadvantages of bioremediation	**07**
		OR	
Q.5	**(a)**	What is MPN? Explain in detail	**07**
	(b)	Write a short note: Ex-situ bioremediation of soil	**07**

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