Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

M. E. - SEMESTER – I • EXAMINATION – WINTER 2012

Subject code: 711703N **Date: 12-01-2013**

Subject Name: Environmental Microbiology

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 importance of microorganisms in applied field.	**07**
	(b)	Discuss the Whittaker's five- kingdom classification scheme.	**07**
Q.2	**(a)**	Why microorganisms stained? Name several different staining techniques and describe their applications. Give limitation of electron microscopy.	**07**
	(b)	Draw a typical bacterial cell and identify all parts. Give function of each part.	**07**
		OR	
	(b)	Differentiate between the growth rate and generation time. Briefly describe methods for measurement of growth of microorganisms.	**07**
Q.3	**(a)**	What is the chemical nature of DNA? Discuss Watson's and Crick's model of double helix of DNA.	**07**
	(b)	Why are enzymes are important to a cell? Discuss the conditions which affects the activity of an enzyme.	**07**
		OR	
Q.3	**(a)**	What is mechanisms of transformation? Discuss it with neat sketch.	**07**
	(b)	Write short note on transcription with suitable diagram.	**07**
Q.4	**(a)**	What is glycolysis? Discuss in brief the different routes of glucose utilization.	**07**
	(b)	In what ways are fungi important to humans?	**07**
Q.4	**(a)**	What is virus? Write in brief its general feature and occurrence. List the name of plant and animal virus.	**07**
Q.4	**(b)**	How are algae similar to and different form higher green plants? Why are algae important in the food chain of aquatic environments?	**07**
Q.5	**(a)**	Discuss the different modes of preservation of microorganisms	**07**
	(b)	Describe the physical and chemical methods of food preservation.	**07**
		OR	
Q.5	**(a)**	Write short note on " AIDS" and "Human cancer".	**07**
	(b)	What is biogeochemical cycling? Discuss the carbon Cycling.	**07**

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