Seat No.:	Enrolment No.

GUJARAT TECHNOLOGICAL UNIVERSITY M. E. - SEMESTER - I • EXAMINATION - WINTER • 2014

Subject code: 2711702 Date: 07-01-2015 Subject Name: Environmental Chemistry & Micro Biology 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. 07 Q-1 A Explain: 1. Common ion effect and diverse ion effect 2. Homogeneous equilibrium and heterogeneous equilibrium What is adsorption? Briefly explain Freundlich and Langmuir isotherm. 07 В Q-2 A Explain order of reaction. Derive an expression for the rate of constant of a second **07** order of reaction Calculate the pH of a buffer solution containing 0.01 M acetic acid and 0.01 M sodium **07** acetate. Then calculate the pH after enough HCl is added to give concentration of 0.001 M OR В What is hardness? Describe various methods used for measurement of hardness Q-3 A Explain in detail gas chromatographic analysis 07 Discuss the types of bacteria based on nutritional requirement 07 В OR Q-3 Bring out the environmental significance of DO and BOD 07 Α Name various types of microscopy and explain electron microscopy **07** В Q-4 A Discuss the various conditions affecting enzyme activity 07 Distinguish between 07 В 1. Gram positive and negative bacteria. 2. Synchronous growth and steady state growth OR **07** A Explain role of microorganisms in environment Q-4 What is MPN? Briefly explain different tests used to measure MPN

Q-5	A	Explaining various types of media, Write the steps in detail for media preparation	07
	В	What is Virus? Explain õBacteriophasesö	07
		OR	
Q-5	A	With neat labeled sketch, explain growth curve of bacteria	
	В	Delineate the significance of algae in Environmental engineering	07

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