Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–IV(New) EXAMINATION – SUMMER 2016

Subject Code:2141302 Date:03/06/2016

Subject Name:Environmental Sciences II

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		**Short Questions**	**14**
	1	Enlist the applications of oxidation reduction potential (ORP)	
	2	What is Beeswax?	
	3	State the equation that defines Zeta potential	
	4	Define: Reverse Osmosis	
	5	Enlist the chemicals used for the measurement of Chlorides	
	6	Write down the formula for COD calculation	
	7	Define: Solids	
	8	What do you mean by Distribution coefficient?	
	9	Describe the term: equilibrium	
	10	Ksp is termed as …	
	11	What is Adsorption Isotherm?	
	12	Define dialysis	
	13	Give general classification of Vitamins	
	14	What are volatile acids?	
Q.2	**(a)**	State the membrane processes used in water and wastewater treatment	**03**
	(b)	Write a short note: Chemical buffers	**04**
	(c)	Explain in detail classification of Alcohols	**07**
		OR	
	(c)	Explain the properties of Aliphatic compounds	**07**
Q.3	**(a)**	Discuss in brief: Common Ion Effect	**03**
	(b)	Explain, in brief, the sources from where the organic compounds are derived.	**04**
	(c)	Explain how organic compounds are different from inorganic compounds	**07**
		OR	
Q.3	**(a)**	State Le Chatelier's principle.	**03**
	(b)	Explain hydrolysis of fats and Oil.	**04**
	(c)	Determine the equilibrium pH of a solution made by adding acetic acid to water to give a concentration of 10^{-2} M at 25°C.	**07**
Q.4	**(a)**	Enlist the chemicals required for BOD measurement	**03**
	(b)	Write a short note: Polyhydroxy Alcohols	**04**
	(c)	Explain in detail: Biological degradation of Detergents	**07**
		OR	
Q.4	**(a)**	Enlist the mechanisms by which colloids can be coagulated	**03**
	(b)	Explain the chemical principle involved in measurement of COD	**04**
	(c)	Draw the structure of following heterocyclic compounds: Furfural, Ethylene oxide, pyrrole, pyridine, indole, RDX	**07**
Q.5	**(a)**	Explain in brief TOC.	**03**
	(b)	Explain the environmental significance of Colloids	**04**
	(c)	Explain the biological properties of Pesticides	**07**

OR

Q.5	**(a)**	State Schulze-Hardy rule	**03**
	(b)	Explain in brief physisorption and chemisorption	**04**
	(c)	Explain in detail the general properties of Colloids	**07**

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