Sea	t No.:	Enrolment No	
		GUJARAT TECHNOLOGICAL UNIVERSITY	
		BE - SEMESTER-IV(OLD) • EXAMINATION – WINTER 2016	
	•	Code:141302 Date:22/11/201	.6
	•	Name: Environmental Sciences-II	
		2:30 PM to 05:00 PM Total Marks: 70	0
Inst	tructio		
		Attempt all questions. Make suitable assumptions wherever necessary. Figures to the right indicate full marks.	
Q.1	(a)	What is isomerism and explain with structural formulas and molecular formula of C_6H_{14} .	07
	(b)	Write chemical equations involved in Unmodified Winkler Method. Which modification is required in unmodified Winkler Method for Dissolved Oxygen? Why?Explain modified Winkler Method with Chemical Reaction for DO determination	07
Q.2	(a)	Give the role of following chemicals in COD determination: (i) K ₂ Cr ₂ O ₇ (ii) H ₂ SO ₄ (iii)HgSO ₄ (iv) Ferrous Ammonium Sulfate (FAS)	07
	(b)	Give the difference between (i) Aliphatic and Aromatic compounds biodegradability point of view. (ii) organic & inorganic compounds with examples OR	07
	(b)	What is common ion effect? Give its application in waste water treatment with example	07
Q.3	(a) (b)	What is acidity? What are its types? Explain the method of its measurement. Explain the following terms (i) tyndall effect (ii) Brownian movement. OR	07 07
Q.3	(a) (b)	What is adsorption? Explain the factors governing adsorption. Give the difference between (i) Ionization and dissociation (ii) Homogeneous chemical equilibrium and Heterogeneous chemical equilibrium	07 07
Q.4	(a) (b)	Write a short note on osmosis. Write a short note on electrodialysis.	07 07
Q.4	(a)	OR Why organic matter removal is important for wastewater treatment and explain why are oxidation reactions of organic compounds important to environmental engineers.	07
	(b)	What are colloids? Explain its types with examples.	07
Q.5	(a) (b)	Explain the biochemistry of carbohydrates & fats. Write the procedure for the measurement of COD in wastewater OR	07 07
Q.5	(a)	Which is greater BOD or COD, and why? Write the difference between BOD &	07

(b) What are the factors affecting solubility of oxygen in water.

COD.

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