Seat No.:	Enrolment No

GUJARAT TECHNOLOGICAL UNIVERSITY BE - SEMESTER- IV (NEW) EXAMINATION - SUMMER 2015

Subject (Code: 2141302 Da	ate: 01/06/2015
Subject 1	Name: Environmental Sciences-II	
	≛	otal Marks: 70
nstruction 1	is: Attempt all questions.	
	Make suitable assumptions wherever necessary.	
	Figures to the right indicate full marks.	
Q.1	Explain briefly.	14
(a)	Give difference between temporary hardness & permanent hardness.	
(b)	Explain use of FAS in COD test with chemical reaction.	
(c)	What is azide modification in Winkler method?	
(d)	Write significance of pH in waste water analysis.	
(e)	Why HgSO ₄ in COD test with chemical reaction? Give chemical reaction	1.
(f)	Why K ₂ Cr ₂ O ₇ is considered better oxidizing agent than KMnO ₄ in COD t	est?
(g)	Explain solubility product.	
Q.2(a)	The solubility product Ksp for, cadmium hydroxide is 5.9x10 ⁻¹⁵ . Determ	ine 07
	solubility of Cd(OH) ₂ in mg/L in water at 25°C.(At. Wt. of Cd=112,O=1	6,H=1)
(b)	Determine theoretical COD of following compounds in mg/L in a sample	e of 07
. ,	waste water. (i)1000mg/L glucose(ii)1200 mg/L acetic acid	
	OR	07
(b)	At what [Ca ⁺²] in mg/L will precipitation of Ca(PO ₄) ₂ occurs if solution	07
	contains 10^{-6} M PO ₄ $^{-3}$? (Ksp of Ca(PO ₄) ₂ =1x10 ⁻²⁷)	
Q.3(a)	Explain methyl orange and phenolphthalein acidity in detail.	07
(b)	Write a note on solvent extraction.	07
(0)	OR	
Q.3(a)	Explain chemistry behind determination of Do in waste water sample.	07
(b)	Explain biochemistry of(i)carbohydrates(ii)proteins	07
(0)		
Q.4(a)	Give at least seven major differences between COD & BOD.	07
(b)	Discuss in detail common ion effect by giving suitable example.	07
	OR	07
Q.4(a)	Explain Aliphatic & aromatic compounds with examples. State their	07
	significance in waste water analysis.	orenared 07
(b)		orepared 07
	in laboratory?	
0.5(-)	Indicate whether COD results would probably be higher, lower or same	as true 07
Q.5(a)	value if FAS was assumed to have same normality as it did one month p	orior to
	current analysis. Justify your answer.	
(b)	t cnon t i cnon t llution control?	07
(0)	OR	
Q.5(a)	Explain at least three major points in which organic compounds differ f	rom 07
Q.5(u)	inorganic compounds.	
(b)		07
