A		Reg. No. :										
		Question Pap	er Co	ode:	510	06						
B.E./B.Tech. DEGREE EXAMINATION, DEC 2021												
First Semester												
	Civil Engineering											
15UCY106 - CHEMISTRY FOR CIVIL ENGINEERING												
(Regulation 2015)												
Durat	ion: Three hours						Max	kimu	m: 1	00 M	larks	4 9
Answer ALL Questions												
PART A - $(10 \text{ x } 1 = 10 \text{ Marks})$												
1.	Arrange the covalent bond in increasing order of strength CO1-R							CO1-R				
	(a) $C-I < C-Br < C-CI < C-F$ (b) C			) C-F < C-Br < C-Cl < C-I								
	(c) $C-Br < C-F < C-Cl < C-I$			(d) $C-Cl < C-I < C-Br < C-F$								
2.	Which among the following is the weakest bond?						(	CO1-R				
	(a) Covalent Bond		(b) Ionic Bond									
	(c) Metallic Bond			(d) Hydrogen Bond								
3.	Name the gases disso	ases dissolved in water that cause corrosion										CO2-R
	(a) $O_2$ , $CO_2$ , $SO_2$ (	(b) $H_2$ , $H_2S$ , $Cl_2$ (c)	) O <sub>2</sub> ,Cl	<sub>2</sub> ,Wa	ter v	rapou	ır	(d)N	Jone	of th	e ab	ove
4.	UV Rays are used in	water treatment for									(	CO2-R
	(a) Illumination (	(b) Disinfection	(c) (	Coag	ulati	on			(d)	Sed	imer	ntation
5.	During rusting of iron metal CO3						CO3-R					
	(a) Corrosion occurs at cathode											
	(b) Corrosion product is deposited at anode											
	(c) Corrosion occurs at anode and rust is deposited at cathode											
	(d) Corrosion occurs at anode and rust is deposited at anode											
6.	Which parts of Corrosion cell undergo corrosion?					(	CO3-R					
	(a) Anodic part (	(b) Cathodic part	(c) ]	Envi	ronm	nent			(d)	Bot	h a ð	ż b

7.	Limin		CO4-R						
	(a) Ca	$ACO_3$ (b) CaO (c) MgO			(d) MgCO <sub>3</sub>				
8.	Optim	Optimum growth of bacteria in soil					CO4-R		
	(a) A	a) Acidic (b) Alkali							
	(c) Ne	eutral to sligh	(d) Slightly acidic to r	(d) Slightly acidic to neutral					
9.	Whicl	Which is the artificially prepared abrasives					CO5-R		
	(a) Co	(a) Corundum (b) Garnet (c) Quartz (c)			(d)	l) Carborundum			
10.	Identi	fy the refract	ory whose refractorines	s is about 2500 <sup>°</sup> C		CO5-R			
	(a) Ma	agnesite	(b) Zirconia	(c) Alumina	(d)	Graphite			
PART - B (5 x 2= 10 Marks)									
11.	State Pauli's Exclusion Principle.						CO1-R		
12.	List out the requirements of boiler feed water						CO2-R		
13.	Define EMF						CO3-R		
14.	Define Ion exchange adsorption CO4						CO4-R		
15.	Recall Refractoriness Under Load (RUL)						CO5-R		
	PART – C (5 x 16= 80 Marks)								
16.	. (a) Apply the concept of hybridization and explain t Ethane, Ethylene, Acetylene and PCl <sub>5</sub> Or				n of	CO1-U	(16)		
	(b)		the Characteristic prop c compounds	erties of covalent and		CO1-App	(6)		
(ii) Explain the Lattice energy of Nacl by using BHC. CO1									
17.	<ul> <li>(i) What is desalination? Discuss any one process in detail with suitable diagram.</li> </ul>					CO2-U	(8)		
			Iention the advantages a	rocess for softening of hand disadvantages of this	ard	CO2-U	(8)		
	(b)		Or e scale & sludge? Analy lue to their formation	sis the harm full effect or	1	CO2-U	(8)		
		· / •	Sterilization of water ne d of Sterilization	ecessary? Discuss any two	C	CO2-U	(8)		

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18.	(a)	Compare the mechanism of Chemical (Dry) corrosion with Electrochemical corrosion (Wet) and analyze the end products formed during the reaction Or	CO3-Ana	(16)
	(b)	<ul> <li>(i) Explain how the corrosion can be controlled by sacrificial anode and impressed current method.</li> </ul>	CO3-Ana	(8)
		<ul><li>(ii) Briefly analysis the various components of Paint with their functions</li></ul>	CO3-Ana	(8)
19.	(a)	Explain briefly about the cation exchange capacity occurring in the soil. Discuss the various factors influencing CEC. Or	CO4-U	(16)
	(b)	(i) Write a brief note on Inorganic matter of soil.	CO4-U	(8)
		(ii) Explain how pH effects redox potential of soil.	CO4-U	(8)
20.	(a)	What are refractories? How are they classified? Explain any four important refractories	CO5-U	(16)
	( <b>b</b> )	Or (i) Outling the manufacture properties and uses of elumine	COSI	(9)
	(b)	(i) Outline the manufacture, properties and uses of alumina bricks	CO5-U	(8)
		<ul><li>(ii) Write the significance of various chemical constituents present in cement manufacturing</li></ul>	CO5-U	(8)

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