Code No: 151AF

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD B.Tech I Year I Semester Examinations, December - 2019/January - 2020 CHEMISTRY

(Common to EEE, CSE, IT, ITE)

	(Common to EEE, CSE, IT, ITE)				
Time:	3 hours Ma	x. Marks: 75			
Note:	This question paper contains two parts A and B. Part A is compulsory which carries 25 marks. Answer all questions				
	Part B consists of 5 Units. Answer any one full question from each unit. I carries 10 marks and may have a, b as sub questions.	each question			
	carries to marks and may have a, b as sub questions.				
	PART - A				
		(25 Marks)			
1.a)	What are atomic and molecular orbitals?	[2]			
b)	Define temporary and permanent hardness of water? How is it caused?	[2]			
c)	Define single electrode potential.	[2]			
d)	Define optical activity. Give example of optically active compounds.				
e)	Explain the terms transmittance and absorbance.	[2]			
f)	Explain insulators on the basis of band theory.	[3]			
g)	Outline the specifications of potable water.	[3]			
h)	Explain sacrificial anodic protection technique for prevention of corrosion.	[3]			
i)	Explain electrophilic addition reaction with an example.	[3]			
j)	How do you identify carbonyl compounds amines using IR spectroscopy?	[3]			
	PART – B	(50 Marks)			
		(50 Marks)			
2.a)	Explain the molecular orbital energy level diagram of N ₂ molecules.				
b)	Explain the π molecular orbitals of butadiene.	[5+5]			
	OR				
3.	Discuss the crystal field splitting of d orbitals in octahedral and tetrahedral fi	ields. [10]			
4.a)	Explain a method for desalination of brackish water.				
b)	Explain calgon and phosphate conditioning.	[5+5]			
	OR				
5.a)	Discuss complexometric method for estimation of hard water.				
b)	Explain disinfection of water by chlorination.	[5+5]			
6.a)	Write the construction and working of calomel electrode.				
b)	Explain electrochemical theory of corrosion by taking rusting of iron as an e	xample. [5+5]			
	OR	[5,15]			
7.a)	Explain the principle and working of lead acid storage battery.				
b)	Explain galvanic and pitting corrosion.	[5+5]			
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8.a)	Explain the mechanism for the reduction of carbonyl compounds to a	lcohols usino			
	LiALH ₄ .	Lonois using			
b)	Differentiate enantiomers and diasteromers.	[5+5]			
	OR	[]			
9.a)	Explain Markownikoff's rule with the help of an example.				

2.a)	Explain th	e molecular orbi	tal energy level dia	gram of N2 mol	ecules.				
b)	Explain th	Explain the π molecular orbitals of butadiene.							
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6 11	Write the	construction and	morking of colome	l alastroda					
6.a) b)			working of calome eory of corrosion b		of iron as an ex	ample			
U)	Explain Co	renochemical in	cory of corrosion b	y taking rusting	or non as an ex	[5+5]			
			OR						
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8.a)		ne mechanism f	for the reduction		mpounds to al				
8.a) b)	LiALH ₄ .								
b)	LiALH ₄ . Differentia	ate enantiomers	for the reduction of and diasteromers.	of carbonyl co		cohols using			
b) 9.a)	LiALH ₄ . Differentia Explain M	arkownikoff's ru	for the reduction of and diasteromers. OR ule with the help of	of carbonyl co	mpounds to al	cohols using [5+5]			
b)	LiALH ₄ . Differentia Explain M	arkownikoff's ru	for the reduction of and diasteromers.	of carbonyl co	mpounds to al	cohols using			
9.a) b)	LiALH ₄ . Differentia Explain M Discuss th	arkownikoff's ru e mechanism inv	for the reduction of and diasteromers. OR ule with the help of volved in oxidation	of carbonyl co an example. of alcohols usin	mpounds to ale	[5+5]			
b) 9.a)	LiALH ₄ . Differentia Explain M Discuss th	arkownikoff's ru e mechanism inv	for the reduction of and diasteromers. OR ule with the help of volved in oxidation y of Nuclear mag	of carbonyl co an example. of alcohols usin	mpounds to along KMnO ₄ .	[5+5] [5+5] How many			
9.a) b)	LiALH ₄ . Differentia Explain M Discuss th	arkownikoff's ru e mechanism inv	for the reduction of and diasteromers. OR ule with the help of volved in oxidation	of carbonyl co an example. of alcohols usin	mpounds to along KMnO ₄ .	[5+5]			
9.a) b)	LiALH ₄ . Differentia Explain M Discuss th Discuss b signals are	arkownikoff's rue mechanism invitely the theory	for the reduction of th	an example. of alcohols usin	mpounds to along KMnO ₄ . e Spectroscopy. trum?	[5+5] [5+5] How many			

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