Course Code: 1920008 Roll No: **MLRS- R19**

MARRI LAXMAN REDDY
INSTITUTE OF TECHNOLOGY AND MANAGEMENT
(AN AUTONOMOUS INSTITUTION)
(Approved by AICTE, New Delhi & Affiliated to JNTUH, Hyderabad)
Accredited by NBA and NAAC with 'A' Grade & Recognized Under Section2(f) & 12(B)of the UGC act,1956

I B.Tech I Sem Supplementary Examination, October-2022

Chemistry

(CSE & IT)

Time: 3 Hours. **Max. Marks: 70**

Note: 1. Question paper consists: Part-A and Part-B.
2. In Part – A, answer all questions which carries 20 marks.
3. In Part – B, answer any one question from each unit.
Each question carries 10 marks and may have a, b as sub questions.

PART- A

(10*2 Marks = 20 Marks)

1.	a)	What is the difference between atomic and molecular orbitals?	2M	CO1	BL1
	b)	Discuss Linear Combination of Atomic Orbitals (LCAO).	2M	CO1	BL2
	c)	Write various units of hardness and the relationship between them.	2M	CO2	BL2
	d)	How is portable water is disinfected by ozonation?	2M	CO2	BL3
	e)	What are the advantages of Lithium ion batteries?	2M	CO3	BL2
	f)	Why small anodic area undergo intense corrosion?	2M	CO3	BL4
	g)	What is anti Markownikoff's addition? Explain with example.	2M	CO4	BL2
	h)	Write the structure and pharmaceutical applications of Aspirin.	2M	CO4	BL2
	i)	Explain the selection rules of electronic spectroscopy.	2M	CO5	BL1
	j)	Define chemical shift.	2M	CO5	BL1

PART- B

(10*5 Marks = 50 Marks)

2	a)	Outline the salient features of Crystal Field splitting for Octahedral Complexes.	5M	CO1	BL2
	b)	Explain the molecular orbital energy level diagram of Oxygen molecule.	5M	CO1	BL2

OR

3	a)	Describe the hybridization of π- molecular orbitals in benzene.	5M	CO1	BL2
	b)	Write a detailed note on band structure of solids.	5M	CO1	BL2
4	a)	How can you determine the total hardness of water by complexometric method?	5M	CO2	BL2
	b)	Explain the steps involved in treatment of sewage water.	5M	CO2	BL3

OR

5	a)	What is hardness of water? Give the various units of hardness.	5M	CO2	BL2
	b)	Write the principle involved in Desalination of water by Reverse osmosis.	5M	CO2	BL3
6	a)	How do you determine the pH value of the solution using quinhydrone electrode?	5M	CO3	BL3
	b)	Write a short note on electrochemical corrosion.	5M	CO3	BL3
		OR			
7	a)	What is electrochemical series? Write a detailed note on the application of it.	5M	CO3	BL3
	b)	Define corrosion. Explain the mechanism of dry corrosion.	5M	CO3	BL3
8	a)	Write the possible optical isomers of tartaric acid.	5M	CO4	BL3
	b)	Discuss the mechanism of reduction of carbonyl compounds with $NaBH_4$.	5M	CO4	BL3
		OR			
9	a)	Discuss the conformational analysis of n-butane.	5M	CO4	BL3
	b)	Explain the detailed mechanism of electrophilic addition reaction.	5M	CO4	BL3
10	a)	Discuss the applications of electronic spectroscopy.	5M	CO5	BL3
	b)	Write a short note on Magnetic resonance imaging.	5M	CO5	BL2
		OR			
11	a)	Discuss the principle and basic concepts of NMR spectroscopy.	5M	CO5	BL3
	b)	Write a short note on vibrational and rotational spectroscopy.	5M	CO5	BL2

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CO: Course Outcome **BL - Blooms Taxonomy Levels**