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

MLRS

I B.Tech II Sem Supplementary Examination, September-2022
Chemistry
(CE, ECE, MECH)

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 basic principle of Crystal Field Theory?	2M	CO1	BL1
	b)	Mention the effect of doping on conductance.	2M	CO1	BL2
	c)	Explain specifications in Potable water.	2M	CO2	BL2
	d)	Write various units of hardness and the relationship between them.	2M	CO2	BL1
	e)	Write Nernst equation and explain the terms in it.	2M	CO3	BL2
	f)	What is the reason for pitting corrosion to occur?	2M	CO3	BL2
	g)	What is Markovnikov rule? Explain with example.	2M	CO4	BL2
	h)	Write the structure and pharmaceutical applications of Paracetamol.	2M	CO4	BL2
	i)	Define chemical shift.	2M	CO5	BL1
	j)	Write the principle of UV spectroscophy?	2M	CO5	BL2

PART- B
                                        (10*5 Marks = 50 Marks)

2	a)	Discuss briefly the molecular orbital theory.	5M	CO1	BL2
	b)	Outline the salient features of Crystal Field splitting for Tetrahedral Complexes.	5M	CO1	BL3

OR

3	a)	Explain the molecular orbital energy level diagram of Nitrogen molecule.	5M	CO1	BL2
	b)	Discuss the π- molecular orbital theory of 1,3-butadiene.	5M	CO1	BL3

4	a)	How can you determine the total hardness of water by EDTA method?	5M	CO2	BL2
	b)	Explain Ion exchange process for the softening of water.	5M	CO2	BL3

OR

5 a) Calculate the amount of temporary, permanent and total hardness   5M   CO2   BL2
of a sample of water containing $Mg(HCO_3)_2$ = 73 mg/L; $Ca(HCO_3)_2$ = 162 mg/L; $MgCl_2$ = 95 mg/L; $CaSO_4$ = 136 mg/L; $CaCl_2$ = 55.5 mg/L (Atomic weights: Mg = 24, Ca = 40, Cl = 35.5, O = 16, and S = 32).

b) Write the principle involved in chlorination and ozonization. Write   5M   CO2   BL3
its differences.

6 a) Explain the Principle and applications of potentiometric titrations.   5M   CO3   BL2

b) What are the factors which influences rate of corrosion? Give   5M   CO3   BL3
explanation with the reason and one example for each factor.

OR

7 a) What is a battery? Explain the functioning of Li ion battery.   5M   CO3   BL2

b) Write a short note on Sacrificial anodic protection.   5M   CO3   BL3

8 a) Describe the conformational analysis of n-butane.   5M   CO4   BL2

b) Discuss oxidation mechanism of alcohols using $KMnO_4$.   5M   CO4   BL3

OR

9 a) Write a short note on Enantiomers and diastereomers.   5M   CO4   BL2

b) Write the mechanism of SN^1 reaction.   5M   CO4   BL3

10 a) Write the principle and basic concepts of NMR spectroscopy.   5M   CO5   BL2

b) Explain the applications of vibrational spectroscopy.   5M   CO5   BL3

OR

11 a) Discuss the selection rules and applications of electronic   5M   CO5   BL2
spectroscopy.

b) Write a short note on Magnetic resonance imaging.   5M   CO5   BL3

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CO: Course Outcome   BL - Blooms Taxonomy Levels