PVP 23

Code: 23BS1102

I B.Tech - I Semester – Supplementary Examinations – MAY 2025

CHEMISTRY

(Common for EEE, ECE, CSE)

Duration: 3 hours Max. Marks: 70

Note: 1. This question paper contains two Parts A and B.
2. Part-A contains 10 short answer questions. Each Question carries 2 Marks.
3. Part-B contains 5 essay questions with an internal choice from each unit. Each Question carries 10 marks.
4. All parts of Question paper must be answered in one place.

PART – A

1.a)	What are Anti Bonding molecular orbitals?
1.b)	Calculate bond order and give magnetic behavior of H_2.
1.c)	Write a brief note on fullerenes.
1.d)	Define super capacitor.
1.e)	Give the applications of Nernst equation.
1.f)	Define Fuel cell.
1.g)	What are thermosetting plastics?
1.h)	Define functionality of the monomer.
1.i)	What is the principle of HPLC?
1.j)	Give the applications of UV-Visible spectroscopy.

PART – B

					Max. Marks
		UNIT-I			
2	a)	Write a detailed note on π-molecular orbitals of 1,3 Butadiene.			5 M
	b)	Derive an equation for the particle in one Dimensional box.			5 M
		OR			
3	a)	Explain bonding in Hetero nuclear diatomic molecule with suitable example.			5 M
	b)	Write a detailed note on following (i)Heisenberg uncertainty principle (ii) de-Broglie principle.			5 M
		UNIT-II			
4	a)	Discuss p-type semiconductors.			5 M
	b)	Give the preparation and properties of high temperature Super conductors.			5 M
		OR			
5	a)	Classify nano materials based on dimensions.			5 M
	b)	Discuss n-type semiconductors.			5 M
		UNIT-III			
6	a)	Write a detailed note on electrochemical sensors.			5 M
	b)	Define primary battery and explain with suitable example.			5 M
		OR			

7	a)	Discuss the Conduct metric titration of strong acid Vs. strong base.	5 M
	b)	Define secondary battery and explain with suitable example.	5 M
		UNIT-IV	
8	a)	Write the preparation, properties and applications of Buna-S.	5 M
	b)	Distinguish between the Chain growth and Step growth polymerization.	5 M
		OR	
9	a)	Describe the Cationic mechanism of addition polymerization.	5 M
	b)	Write the preparation, properties and applications of Buna-N.	5 M
		UNIT-V	
10	a)	Discuss various electronic transitions involved in UV-Visible spectroscopy.	5 M
	b)	Describe the instrumentation of IR spectroscopy with neat sketch.	5 M
		OR	
11	a)	Write the principle and applications of the Chromatography.	5 M
	b)	Give detailed note on electromagnetic spectrum and absorption criteria.	5 M