

CO2	K3	12a.	Examine the similarities and diagonal relationship in chemical properties between lithium and magnesium. (OR)
CO2	K3	12b.	Apply your understanding of chemical reactions to describe the preparation of potassium chlorate (KClO ₃) from potassium hydroxide and chlorine gas. Discuss its important properties and explain its uses in different industries.
CO3	K4	13a.	Analyze what are interhalogen compounds? Give examples. (OR)
CO3	K4	13b.	Compare clathrates of noble gases with their respective free gases. How does the encapsulation of noble gases in clathrates affect their physical and chemical properties? Discuss with specific examples
CO4	K4	14a.	Differentiate between Saytzeff's rule and Bredt's rule in terms of their application to elimination and rearrangement reactions. (OR)
CO4	K4	14b.	Illustrate the aromatic electrophilic substitution reaction of benzene. Give three examples.
CO5	K5	15a.	Evaluate the detailed mechanism of both Friedel-Crafts alkylation and acylation reactions. (OR)
CO5	K5	15b.	Critically assess the various orientation rules in electrophilic aromatic substitution reactions. with suitable examples.

Course Outcome	Bloom's K-level	Q. No.	SECTION – C (5 X 8 = 40 Marks) Answer ALL Questions choosing either (a) or (b)
CO1	K3	16a.	Apply the concept of solubility product (K_{sp}) to explain how the formation of a precipitate can be predicted in a solution. Discuss its applications in qualitative analysis. (OR)
CO1	K3	16b.	What is meant by degree of hydrolysis? How would you determine the degree of hydrolysis of aniline hydrochloride?
CO2	K4	17a.	Analyze the structure of diborane with respect to its bonding. (OR)
CO2	K4	17b.	Compare the physical and chemical properties of carbon and silicon.
CO3	K4	18a.	Analyze the preparation, properties, and structure of xenon fluorides and oxides: XeF ₆ , XeOF ₄ , and XeF ₄ . (OR)
CO3	K4	18b.	Compare the preparation methods, properties, and structure of hydrazine (N ₂ H ₄). How does its structure influence its chemical reactivity and its uses in industrial.
CO4	K5	19a.	(i) Evaluate the significance of Hoffmann's rule in elimination reactions (ii) Discuss the aromatic electrophilic substitution reaction. (OR)
CO4	K5	19b.	Assess the factors influencing 1,2 and 1,4 addition reactions of alkenes.
CO5	K5	20a.	Critically evaluate the structure of benzene. (OR)
CO5	K5	20b.	Analyze the application of Huckel's rule in determining the aromaticity of compounds. How does the ortho/para ratio influence the orientation of substituents in electrophilic aromatic substitution reactions.