Reg. No. | | | | | | | | |

G. VENKATASWAMY NAIDU COLLEGE (AUTONOMOUS), KOVILPATTI – 628 502.

UG DEGREE END SEMESTER EXAMINATIONS - APRIL 2025.

(For those admitted in June 2023 and later)

PROGRAMME AND BRANCH: B.Sc., CHEMISTRY

SEM	CATEGORY	COMPONENT	COURSE CODE	COURSE TITLE
II	PART-III	CORE-2	U23CH202	GENERAL CHEMISTRY-II

Date & Session: 28.04.2025/FN **Time: 3 hours** **Maximum: 75 Marks**

Course Outcome	Bloom's K-level	Q. No.	SECTION – A (10 X 1 = 10 Marks) Answer ALL Questions.
CO1	K1	1.	Which of the following is acid-base indicator? a) Starch b) Thymol blue c) Potassium Permanganate d) Eriochrome black T
CO1	K2	2.	What is the pH of 0.01 N NaOH solution? a) 9 b) 10 c) 11 d) 12
CO2	K1	3.	The electron count in the banana bond of diborane is a) 1 b) 2 c) 3 d) 4
CO2	K2	4.	Describe the products formed when lithium undergoes a reaction with water. a) $Li_2O + CO_2$ b) $Li_2O + CO$ c) $LiOH + H_2$ d) $LiOH + CO_2$
CO3	K1	5.	Determine the following as s reducing agent. a) hydrazine b) sulfur dioxide c) sulfuric acid d) ammonium persulfate
CO3	K2	6.	What is the structure of xenon hexafluoride? a) distorted octahedral b) square pyramidal c) square planar d) trigonal pyramidal
CO4	K1	7.	When 2-chlorobutane is heated with NaOH, it primarily gives a) 2-butanol b) 1-butanol c) 1-butene d) 2-butene
CO4	K2	8.	The most stable conformation of cyclohexane is a) boat conformation b) twist-boat conformation c) chair conformation d) half-chair conformation
CO5	K1	9.	Cyclopentadienyl anion contains _____ electrons. a) 2π b) 4π c) 6π d) 10π
CO5	K2	10.	Which of the options below represents an electrophilic substitution reaction? a) amination b) esterification c) acylation d) all
Course Outcome	**Bloom's K-level**	**Q. No.**	**SECTION – B (5 X 5 = 25 Marks) Answer ALL Questions choosing either (a) or (b)**
CO1	K3	11a.	Write concisely about Lewis acids and bases, providing appropriate examples. **(OR)**
CO1	K3	11b.	Discuss the applications of solubility product.

CO2	K3	12a.	Explain the diagonal relationship between Li and Mg. **(OR)**
CO2	K3	12b.	Describe the preparation, properties, and uses of Borax.
CO3	K4	13a.	Illustrate the preparation, reactions, and applications of Phosphine. **(OR)**
CO3	K4	13b.	What is the process for making perchloric acid? Explain its structure and uses.
CO4	K4	14a.	Explain Markownikoff's rule with an example. **(OR)**
CO4	K4	14b.	Using suitable examples, examine the Diel's Alder reaction and free radical additions of dienes.
CO5	K5	15a.	Write a note on aromaticity of non-benzenoid aromatic compounds. **(OR)**
CO5	K5	15b.	Evaluate the oxidation reactions of naphthalene using various oxidizing agents.

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.	Explain the theory and applications of acid base indicators. **(OR)**
CO1	K3	16b.	Derive Henderson equations for buffers. Write down its applications.
CO2	K4	17a.	Analyze the structure of diborane. **(OR)**
CO2	K4	17b.	Compare the properties of carbon with silicon.
CO3	K4	18a.	What is ozone? Write down its properties and uses. **(OR)**
CO3	K4	18b.	Describe the preparation and structure of XeF_6 and $XeOF_4$.
CO4	K5	19a.	Describe and evaluate Hoffmann's and Saytzeff's rules. **(OR)**
CO4	K5	19b.	Evaluate the conformational analysis of Cyclohexane.
CO5	K5	20a.	Discuss the Friedel-Craft's alkylation and acylation reactions. Give suitable examples to assess their mechanism. **(OR)**
CO5	K5	20b.	Discuss the methods used to determine orientation of aromatic substitution.