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., PHYSICS

SEM	CATEGORY	COMPONENT	COURSE CODE	COURSE TITLE
IV	PART-III	ELECTIVE GENERIC-4	U23CH4A4	CHEMISTRY FOR PHYSICAL SCIENCES-II

Date & Session:03.05.2025/AN **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.	Oxidation number of Fe in $[Fe(CN)_6]^{3-}$ a) +2 b) +3 c) - 3 d) -4
CO1	K2	2.	Which of the following complexes does not follow EAN rule? a) $Fe(CO)_5$ b) $[Co(NH_3)_6]^{3+}$ c) $V(CO)_6$ d) $[Fe(CN)_6]^{3-}$
CO2	K1	3.	Inulin on hydrolysis in acidic medium gives a) glucose b) fructose c) sucrose d) maltose
CO2	K2	4.	Which of the following is a Sulphur containing amino acid? a) alanine b) lysine c) glycine d) cysteine
CO3	K1	5.	EMF is the difference in _____ between two electrodes. a) protons b) potential c) electrons d) velocity
CO3	K2	6.	Galvanizing is the process of coating Iron with _____. a) Zinc b) copper c) lead d) tin
CO4	K1	7.	Acid hydrolysis of ester is a _____ reaction. a) unimolecular b) bimolecular cular c) pseudounimole d) second order
CO4	K2	8.	Catalyst used in Haber's process a) Pt b) Pd c) Ni d) Fe
CO5	K1	9.	Which of the following is a non-radiative process? a) photosensitization b) Phosphorescence c) chemiluminescence d) fluorescence
CO5	K2	10.	The sensitizer in photosynthesis is a) carbondioxide b) chlorophyll c) water d) starch
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.	Define hardness of water. Explain the types. **(OR)**
CO1	K3	11b.	What is the biological role of chlorophyll? Give its structure.

CO2	K3	12a.	Give 5 reactions of glucose. **(OR)**
CO2	K3	12b.	Explain isoelectric point of amino acids.
CO3	K4	13a.	Examine few methods of preventing corrosion. **(OR)**
CO3	K4	13b.	Illustrate the process of electroplating.
CO4	K4	14a.	Examine first order reaction and derive rate equation. **(OR)**
CO4	K4	14b.	Differentiate homogeneous and heterogeneous catalysis with example.
CO5	K5	15a.	Assess Stark-Einstein's law of photochemical equivalence. **(OR)**
CO5	K5	15b.	Evaluate the process of chemiluminescence.

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.	Write the postulates of Pauling's theory and explain with $[Co(CN)_6]^{3-}$ complex. **(OR)**
CO1	K3	16b.	How is COD estimated by dichromate method?
CO2	K4	17a.	Discuss the preparation and properties of fructose. **(OR)**
CO2	K4	17b.	Outline the reactions to develop open chain and ring structure of fructose.
CO3	K4	18a.	Classify conductometric titrations and explain. **(OR)**
CO3	K4	18b.	Illustrate use of Henderson equation to determine pH of buffer solutions
CO4	K5	19a.	Analyse the use of half life method to determine rate of reaction. **(OR)**
CO4	K5	19b.	Deduce Arrhenius equation and give its significance.
CO5	K5	20a.	Explain i) fluorescence ii) phosphorescence **(OR)**
CO5	K5	20b.	Evaluate the quantum yield in the reaction of Hydrogen and Chlorine to give HCl.