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

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

UG DEGREE END SEMESTER EXAMINATIONS - APRIL 2025.

(For those admitted in June 2021 and later)

PROGRAMME AND BRANCH: B.Sc. CHEMISTRY

SEM	CATEGORY	COMPONENT	COURSE CODE	COURSE TITLE
II	PART - III	CORE	U21CH203	INORGANIC CHEMISTRY-II

Date & Session: 23.04.2025/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.	The geometry of XeF_4 is _____. a) octahedral b) tetrahedral c) square planar d) see-saw
CO1	K2	2.	Which of the following noble gas is used in the treatment of cancer? a) Ne b) Ar c) Kr d) Rn
CO2	K1	3.	Which of the following metal has high melting point? a) Fe b) Zn c) Ni d) Os
CO2	K2	4.	The formula of sodium nitroprusside is _____. a) $Na_2[Fe(CN)_5NO]$ b) $Na[Fe(CN)_5NO]$ c) $Na_3[Fe(CN)_5NO]$ d) $Na_2[Fe(CN)_5NO_2]$
CO3	K1	5.	The stable outermost electronic configuration of Gadolinium is _____. a) $4f^75d^06s^2$ b) $4f^75d^06s^1$ c) $4f^75d^16s^2$ d) $4f^85d^06s^2$
CO3	K2	6.	Which of the following ion in +2 oxidation state has completely filled f-orbital? a) Ac b) No c) Lr d) Am
CO4	K1	7.	The process of extracting metals from their ores is called. a) Separation b) metallurgy c) concentration d) precipitation
CO4	K2	8.	Smelting is carried out in _____. a) Bunsen flame b) absence of light c) blast furnace d) both b and c
CO5	K1	9.	Choose the metal ion indicator among the following? a) methyl orange b) methyl red c) Phenolphthalein d) eriochrome black-T
CO5	K2	10.	A correct qualitative test for oxalate ion is _____. a) Chromyl chloride test b) calcium chloride test c) Borax bead test d) all of these
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.	Identify the special features of Helium. **(OR)**
CO1	K3	11b.	How will you prepare XeF2, XeF6 and $XeOF_4$?
CO2	K3	12a.	Sketch and explain the importance of Ni - DMG and $KMnO_4$ **(OR)**
CO2	K3	12b.	Differentiate Prussian and Turnbull's blue.

CO3	K4	13a.	Explain the ion-exchange method of separation of lanthanides. **(OR)**
CO3	K4	13b.	Illustrate the oxidation states of actinides.
CO4	K4	14a.	Analyse the mineral wealth of India in detail. **(OR)**
CO4	K4	14b.	Comment on Froth floatation and Calcination briefly.
CO5	K5	15a.	Illustrate the qualitative tests for oxalate, phosphate and Arsenate ions? **(OR)**
CO5	K5	15b.	Deduce the following i) 0.5M calcium carbonate in 250mL flask ii) 4N NaOH in 100 mL

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.	List out the importance and uses of clathrates. **(OR)**
CO1	K3	16b.	Describe the Dewar's method of separation of Noble gases.
CO2	K4	17a.	Analyse the variable valency of transition elements. **(OR)**
CO2	K4	17b.	Examine the role of Ziegler- Natta catalyst, Wilkinson catalyst and Fenton's reagent.
CO3	K4	18a.	What is lanthanide contraction? Write its causes and consequences. **(OR)**
CO3	K4	18b.	Compare and contrast the properties of lanthanides and actinides.
CO4	K5	19a.	Write a brief critique on Ellingham diagram for the oxidation of metal to metal oxides. **(OR)**
CO4	K5	19b.	Explain the purification techniques of metallurgy.
CO5	K5	20a.	Evaluate the role of EDTA and metal ion indicators in complexometric Titration. **(OR)**
CO5	K5	20b.	Appraise the techniques post-precipitation, coprecipitation and occlusion in Gravimetric Analysis.