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
I	PART - III	CORE	U21CH101	INORGANIC CHEMISTRY-I

Date & Session: 23.04.2025/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 is the best metal for photoelectric effect ? a) Sodium b) potassium c) Calcium d) Cesium
CO1	K2	2.	The stable outermost electronic configuration of Chromium is _____. a) $3d^5 4s^2$ b) $3d^4 4s^2$ c) $3d^5 4s^1$ d) $3d^4\ 4s^1$
CO2	K1	3.	Choose the correct order of Pauling electronegative scale of elements a) B>Al>C>N b) B>Al>C>F c) F>N>O>C d) F>Al>C>N
CO2	K2	4.	The energy required for placing two electrons in the same orbital is known as-_____. a) exchange energy b) threshold energy c) activation energy d) pairing energy
CO3	K1	5.	The type of bond formed by lateral overlapping of two half-filled orbitals is called _____. a) sigma bond b) pi bond c) delta bond d) antibonding
CO3	K2	6.	The bond order of CO molecule is _____. a) 0 b) 1 c) 2 d) 3
CO4	K1	7.	The flame colour of barium on Bunsen flame is _____. a) red b) yellow c) green d) blue
CO4	K2	8.	The correct order of reactivity among the alkali metals is _____. a) Li < Na < K < Rb <Cs b) Li < Na < K = Rb <Cs c) Li > Na > K > Rb >Cs d) Li = Na < K < Rb =Cs
CO5	K1	9.	How many 3c-$2e^-$ bonds present in diborane? a) 0 b) 1 c) 2 d) 4
CO5	K2	10.	Which is not an interhalogen compound? a) HF b) IF_5 c) ClF_3 d) IF
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.	Derive De-Broglie Wave-particle equation. **(OR)**
CO1	K3	11b.	Determine the extra stability of half-filled and completely filled orbitals.
CO2	K3	12a.	Write a brief note on long form of periodic table. **(OR)**
CO2	K3	12b.	Explain Pauling and Mullikan scale of electronegativity.

CO3	K4	13a.	Discuss the postulates of VSEPR theory. **(OR)**
CO3	K4	13b.	Illustrate the polarisation of ionic compounds using Fajan's rule.
CO4	K4	14a.	Discuss the resemblance of Hydrogen with alkali metals. **(OR)**
CO4	K4	14b.	Write a brief survey about complex formation of alkali and alkaline earth metals.
CO5	K5	15a.	Borazine is called as 'Inorganic benzene'-Justify. **(OR)**
CO5	K5	15b.	Sketch and explain the different types of silicate structures.

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.	Determine the significance of Quantum Numbers. **(OR)**
CO1	K3	16b.	Write short note on Pauli's exclusion Principle and Hund's rule.
CO2	K4	17a.	Discuss the factors affecting electronegativity in detail. **(OR)**
CO2	K4	17b.	Explain the variation of periodic properties along the groups and periods.
CO3	K4	18a.	Compare and contrast the features of VBT and MOT. **(OR)**
CO3	K4	18b.	Analyse the bond order and Magnetism of CO and O_2 using MO diagram.
CO4	K5	19a.	Evaluate the resemblance of Lithium and magnesium. **(OR)**
CO4	K5	19b.	Write any eight chemical properties of alkaline earth metals.
CO5	K5	20a.	Point out the applications of carbides and fluorocarbons. **(OR)**
CO5	K5	20b.	Illustrate the structure and bonding in Diborane.