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

UG DEGREE END SEMESTER EXAMINATIONS - NOVEMBER 2024.
(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: 16.11.2024 / 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.	According to de Broglie wave equation, wavelength is _____ to momentum of electron. a) directly proportional b) inversely proportional c) equal d) none of these
CO1	K2	2.	How many electrons can be accommodated in d-subshell? a) 2 b) 6 c) 10 d) 14
CO2	K1	3.	The shape of p-orbital is. a) spherical b) dumbbell c) clover d) double dumb bell
CO2	K2	4.	Which is the most electronegative element of the periodic table? a) Oxygen b) nitrogen c) Chromium d) fluorine
CO3	K1	5.	Find the paramagnetic molecule among the following. a) N_2 b) H_2 c) He d) O_2
CO3	K2	6.	The shape and hybridisation of NH_3. a) square planar and sp3 b) tetrahedral and sp3 c) Pyramidal and sp3 d) square planar and dsp2
CO4	K1	7.	Which of the following is a covalent hydride? a) CH_4 b) LiH c) NaH d) $VH_{0.6}$
CO4	K2	8.	Find the flame colour of barium. a) brick red b) crimson red c) scarlet red d) grassy green
CO5	K1	9.	Boron halides are act as -------- a) Lewis base b) Lewis acid c) lux flood acid d) Arrhenius acid
CO5	K2	10.	How many lone pairs in sulphite ion? a) 0 b) 1 c) 2 d) 3

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.	Apply de-Broglie wave equation to explain the dual character of electron? **(OR)**
CO1	K3	11b.	Determine the number of electrons in K,L and M shells using Pauli Exclusion principle.
CO2	K3	12a.	Write the stable electronic configuration of Be, N, Cr, Cu and Gd- Reason out. **(OR)**
CO2	K3	12b.	Identify the factors affecting the magnitude of electronegativity.
CO3	K4	13a.	Illustrate Born-Lande equation and express the terms involved in it. **(OR)**
CO3	K4	13b.	Sketch and explain the Born Haber cycle for the calculation of Lattice energy.
CO4	K4	14a.	Comment the position of Hydrogen in the periodic table. **(OR)**
CO4	K4	14b.	Criticize the dissimilarities of Lithium with other alkali metals.
CO5	K5	15a.	Interpret any two structures of oxy acids of phosphorous and sulphur. **(OR)**
CO5	K5	15b.	Write a brief note on Interhalogen compounds and assess their significance.

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.	Classify the types of Quantum numbers and write their significance. **(OR)**
CO1	K3	16b.	Make use of the following in explaining atomic structure., i) Hund's rule and ii) radial probability distribution
CO2	K4	17a.	Analyse Pauling and Mullikan scale of electronegativity in detail. **(OR)**
CO2	K4	17b.	Examine the merits and demerits of Long form of periodic table.
CO3	K4	18a.	Connect the role of Polarisation theory of covalency in ionic compounds. **(OR)**
CO3	K4	18b.	Compare and contrast the features of VBT and MOT.
CO4	K5	19a.	Interpret the complex formation of alkali and alkaline earth metals. **(OR)**
CO4	K5	19b.	Justify the diagonal relationship of lithium and magnesium.
CO5	K5	20a.	Deduct the classification of silicates based on their structure. **(OR)**
CO5	K5	20b.	Appraise the preparation, structure and bonding of diborane.