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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
I	PART - III	CORE - 1	U23CH101	GENERAL CHEMISTRY- I

Date &amp; Session: 26.04.2025/FN

Time: 3 hours

Maximum: 75 Marks

Course Outcome	Bloom's K-level	Q. No.	SECTION – A (10 X 1 = 10 Marks) Answer <u>ALL</u> Questions.
CO1	K1	1.	Dual nature of electron was proposed by. a) Einstein                      b) Heisenberg                      c) De Broglie                      d) Schrodinger
CO1	K2	2.	The valence shell electronic configuration of chromium (At. No. = 24). a) $3d^4 4s^2$ b) $4d^4 5s^2$ c) $3d^5 4s^1$ d) $4d^5 5s^1$
CO2	K1	3.	The relationship between Li, Mg and Be, Al is called the _____ relationship. a) Diagonal                      b) Periodic                      c) Group                      d) Triangle
CO2	K2	4.	Which of the following halogens has the highest electronegativity? a) F                      b) Cl                      c) Br                      d) I
CO3	K1	5.	Which is an ionic compound? a) NaCl                      b) $CH_4$ c) Glucose                      d) Ethanol
CO3	K2	6.	Which of the following is octahedral shape? a) $C_2H_2$ b) $CH_4$ c) $SF_6$ d) $PCl_5$
CO4	K1	7.	The bond order of $He_2$ is _____. a) 0                      b) 2                      c) 1                      d) 3
CO4	K2	8.	Conductance of metals is due to _____. a) ions                      b) delocalized electrons c) atomic kernel                      d) number of atoms
CO5	K1	9.	Which one of the following is nucleophile? a) $CN^-$ b) $Cl^-$ c) $Br^-$ d) $I^-$
CO5	K2	10.	The number of pi bonds in acetylene molecule is _____. a) 1                      b) 2                      c) 3                      d) 4
Course Outcome	Bloom's K-level	Q. No.	SECTION – B (5 X 5 = 25 Marks) Answer <u>ALL</u> Questions choosing either (a) or (b)
CO1	K3	11a.	Explain photoelectric effect.
CO1	K3	11b.	(OR) State and explain Pauli's exclusion principle.
CO2	K3	12a.	Difference between orbit and orbitals.
CO2	K3	12b.	(OR) Distinguish between s and p-block elements.
CO3	K4	13a.	Summarise the general properties of ionic compounds.
CO3	K4	13b.	(OR) On the basis of VSEPR theory, deduce the geometry of $H_2O$ .

CO4	K4	14a.	Illustrate the limitations of VB theory. <b>(OR)</b>
CO4	K4	14b.	Explain the types of semi-conductors.
CO5	K5	15a.	Discuss inductive and mesomeric effect with suitable examples. <b>(OR)</b>
CO5	K5	15b.	Classify the types of bond Cleavages.

Course Outcome	Bloom's K-level	Q. No.	<b>SECTION – C (5 X 8 = 40 Marks)</b> <b>Answer <u>ALL</u> Questions choosing either (a) or (b)</b>
CO1	K3	16a.	Illustrate the Rutherford's atom model and its drawbacks <b>(OR)</b>
CO1	K3	16b.	Describe the Bohr's theory of atom.
CO2	K4	17a.	Analyse the postulates of quantum Mechanics. <b>(OR)</b>
CO2	K4	17b.	How is electronegativity determined by Pauling and Allred-Rochow method?
CO3	K4	18a.	Describe the Born Haber cycle for NaCl and find its lattice energy. <b>(OR)</b>
CO3	K4	18b.	Explain $sp^3$ and $sp^3d^2$ hybridisation with suitable example.
CO4	K5	19a.	The bond order of $N_2$ is three and the molecules is paramagnetic in nature. – Justify. <b>(OR)</b>
CO4	K5	19b.	Explain the hydrogen bond. Discuss their types.
CO5	K5	20a.	Illustrate the stability of carbonium ions, carbanions and free radicals. <b>(OR)</b>
CO5	K5	20b.	Explain the types of reaction with suitable examples.