XI (3)

Code: A-C616113-M	**I SEMESTER EXAM – 2025-26**	3 x 840
Std.: XI	Sub: CHEMISTRY	Marks: 50
Date:	Roll No.: _____	Time: 2½ Hrs.

General Instructions:

The question paper is divided into four sections.

(1) **Section A:** Q. No. 1 contains 7 multiple choice type of questions carrying One mark each.
Q. No. 2 contains 7 very short answer type of questions carrying One mark each.

(2) **Section B:** Q. No. 3 to Q. No. 13 are 11 short answer type of questions carrying Two marks each. (Attempt any Eight).

(3) **Section C:** Q. No. 14 to Q. No. 19 are 6 short answer type of questions carrying Three marks each. (Attempt any Four).

(4) **Section D:** Q. No. 20 to Q. No. 23 are 4 long answer type of questions carrying Four marks each. (Attempt any Two).

(5) Use of log table is allowed. Use of calculator is not allowed.

(6) Figures to the right indicate full marks.

(7) For each multiple choice type of question, it is mandatory to write the correct answer along with its alphabet

e.g. (a)/(b)/(c)/(d) etc. No mark(s) shall be given, if ONLY the correct answer or the alphabet of the correct answer is written. Only the first attempt will be considered for evaluation. Given:

(8) Physical constant: Avogadro Number = Na= 6.022×10^{23}

SECTION-A

Q.1 Select and write the correct answer for the following multiple choice type of questions: [07]

I. In the reaction $N_{2(g)} + 3H_{2(g)} \rightarrow 2\ NH_{3(g)}$, the ratio by volume of N_2,H_2 &NH_3 is 1:3:2 This illustrates the law of _____ .

a) Definite proportion b) Reciprocal proportion
c) Multiple proportion d) Gaseous volumes

II. In hydrogen spectrum, the series of lines appearing in the ultraviolet region of electromagnetic spectrum are called _____ .

a) Lyman series b) Balmer series
c) Pfund series d) Brackett series

III. The maximum number of electrons in a subshell for which $l = 3$ is _____ .

a) 14 b)10 c) 8 d) 4

IV. How many gm of H_2O are present in 0.25 mol of it?

a) 4.5 b)18 c) 0.25 d) 5.4

V. In the morden periodic table, the period number indicates the _____ .

a) Atomic number b) Atomic mass
c) Principal quantum number d) Azimuthal quantum number

VI. Which of the atomic number represent the s block elements?

a) 7, 15 b)3, 12 c) 6, 14 d) 9, 17

VII. Which of the following halogen does always show oxidation state -1

a)F b) Cl c) Br d)I

Q.2. Answer the following questions: [07]

I. What SI units of Length?

II. State Avogadro's law.

III. State Hund's rule of maximum multiplicity.

IV. Which of the following redox couple is a stronger oxidizing agent?

$$MnO_4^{\ominus}(E^0 = 1.51\,V) \; and \; Cr_2O_7^{2\ominus}\;(E^0 = 1.33\,V)$$

V. Write the stock notation for Fe_2O_3

VI. Define the term electronegativity.

VII. Name the two series that constitute f- block.

SECTION-B

Attempt any EIGHT of the following questions: [16]

Q.3 State and explain law of conservation of mass.

Q.4 Convert the following degree Celsius to degree Fahrenheit, a) 50° C b) 30° C

Q.5 Differentiate between isotopes and isobars.

Q.6 State and explain Pauli's exclusion principle.

Q.7 i. State Heisenberg's Uncertainty principle.
ii. Define the term: isoelectronic species.

Q.8 Select the smaller ion from each of the following pair
a) K^+, Li^+ b) N^{-3}, F^{-1}

Q.9 How does the atomic size vary in a group and across the period?

Q.10 State the characteristics of s - block element

Q.11 Write the formula of the following compound
a) Mercury (II) chloride b) Chromium (III) oxide

Q.12 Define the following term a) oxidizing agent b) redox reaction

Q.13 Calculate the oxidation state of underlined atom in the following
a) $H_3\underline{B}O_3$ b) $Na\underline{I}O_3$

SECTION-C

Attempt any FOUR of the following questions: [12]

Q.14 Write the orbital notations for the electrons in orbitals with the following quantum numbers:
a) n =2, l = 1 (b) n=4, l=2 (c) n=3, l= 0

Q.15 Calculate the Molecular mass of the following in u:(N =14, H = 1,C=12, 0=16)
a) NH_3 b) CH_3COOH c) C_2H_5OH

Q.16 Write any three postulates of Bohr's Theory of Hydrogen atom.

Q.17 Calculate the number of moles and molecules of urea present in 5.6 grams of urea (Molar mass of Urea = 60 gm/mol). Also calculate number of hydrogen atom?

Q.18 Justify the following reaction as redox reaction
$2Na_{(S)} + S_{(S)} \rightarrow Na_2S_{(S)}$
Find out oxidizing and reducing agent.

Q.19 Define the ionization enthalpy. How does it vary down the group and across the period?

SECTION-D

Attempt any TWO of the following questions: **[08]**

Q.20 i) Write the electronic configuration and indicate the number of unpaired electrons in:
a) Si(Z=14) b) Ca(Z=20)

ii) Name the element that shows-simplest emission spectrurn.

Q.21 Predict the block and period to which the following elements belong
a) Mg(Z=12) b) V(Z=23)

Q.22 a. Balance the following redox reaction by oxidation number method

$$MnO^-_{4(aq)} + Br^-_{(aq)} \rightarrow MnO_{2(s)} + BrO^-_{3(aq)} \ (basic)$$

b. Define the term: Valency

Q.23 Complete the following table
Assign the oxidation state to underline species and write stock notation for compound.

Compound	Oxidation state	Stock notation
$\underline{Sn}Cl_2$		
$\underline{V_2}O_7^{-4}$		