

Code: A-C616113-A

I SEMESTER EXAM - 2025-26

3 x 700

Std.: XI

Sub: Chemistry

Marks: 50

Date:

Roll No.: _____

Time: 3 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 along with its alphabet 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 = $N_A = 6.022 \times 10^{23}$.

SECTION - A**Q.1 Select and write the correct answer.**

(7)

- i) Which of the following compounds cannot demonstrate the law of multiple proportions?
a) NO, NO₂ b) CO, CO₂ c) H₂O, H₂O₂
d) Na₂S, NaF
- ii) The maximum number of electrons in a subshell for which $l = 3$ is _____
a) 14 b) 10 c) 8
d) 4
- iii) If the valence shell electronic configuration is $ns^2 np^5$ the element will belong to _____
a) alkali metals b) halogens c) alkaline earth metals
d) actinides
- iv) Number of molecules in 22.4 cm³ of nitrogen at STP is _____
a) 6.022×10^{20} b) 6.022×10^{23} c) 22.4×10^{20}
d) 22.4×10^{23}
- v) Oxidation number of oxygen in superoxide is _____
a) -2 b) -1 c) - $\frac{1}{2}$
d) 0
- vi) Which of the atomic number represent the s-block elements?
a) 7,15. b) 3,12. c) 6,14.
d) 9,17
- vii) The energy difference between the shells goes on _____ when moved away from the nucleus
a) increasing b) decreasing c) equalizing
d) static

P.T.O

Q.2 Answer the following.**(7)**

- i) Name the two series that constitute f-block.
- ii) Write the stock notation for Fe_2O_3
- iii) State the law of multiple proportions,
- iv) State Hund's rule of maximum multiplicity.
- v) Define the term electronegativity,
- vi) Calculate the oxidation number of the underlined atom in $\text{NaH}_2\underline{\text{P}}\text{O}_4$.
- vii) Write condensed orbital notation of electronic configuration of silicon ($Z=14$).

SECTION - B**Attempt any eight of the following questions.****(16)**

- 3) State and explain law of conservation of mass.
- 4) i) Define isotones, ii) State Heisenberg's Uncertainty principle.
- 5) Convert the following degree Celsius temperature to degree Fahrenheit. a) 50°C . b) 20°C
- 6) Define the following term a) oxidizing agent b) redox reaction
- 7) What is the SI unit of amount of substance and length.
- 8) Write a short note on azimuthal quantum number.
- 9) State the characteristics of s-block elements.
- 10) Calculate the oxidation state of underlined atom in the following
a) $\text{H}_3\underline{\text{B}}\text{O}_3$ b) $\text{Na}\underline{\text{I}}\text{O}_3$
- 11) State and explain Pauli's exclusion principle.
- 12) Write the formula of the following compound
a) Mercury (II) chloride b) Chromium(III) oxide
- 13) Differentiate between isotopes and isobars.

SECTION - C**ATTEMPT ANY FOUR OF THE FOLLOWING.****(12)**

14. Calculate the molecular mass of the following in u. ($N=14$, $H=1$, $C=12$, $O=16$)
a) NH_3 b) CH_3COOH c) $\text{C}_2\text{H}_5\text{OH}$
- 15) 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) $n=3, l=0$
- 16) a) Define modern periodic law.
b) Calculate the number of moles of hydrogen in 0.448 litre of hydrogen gas at STP.
- 17) Justify the following reaction as redox reaction.
 $2\text{Na}_{(s)} + \text{S}_{(s)} \longrightarrow \text{Na}_2\text{S}_{(s)}$
Find out oxidizing and reducing agent.
- 18) Write any three postulates of Bohr's Theory of Hydrogen atom.
- 19) Balance the following redox reaction by half reaction method
 $\text{Bi}(\text{OH})_{3(s)} + \text{SnO}^{2-}_{2(aq)} \longrightarrow \text{SnO}^{2-}_{3(aq)} + \text{Bi}_{(s)}$ (Basic)

SECTION - D**ATTEMPT ANY TWO OF THE FOLLOWING.****(8)**

- 20) a) Name the element that shows the simplest emission spectrum.
b) Write the electronic configuration and indicate the number of unpaired electrons in:
i) Si($Z=14$) ii) Cr($Z=24$)
- 21) Predict the block and period to which the following elements belong
a) Mg ($Z = 12$) b) V ($Z = 23$)
- 22) a) Define ionic radius. Give reason: alkali metals have low ionization energy.
b) Write the formulae for the following compound :
Lead (IV) oxide
- 23) a) Calculate the number of molecules of acetic acid present in 22 g of it.
b) Define : i) wavelength ii) frequency
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