SUCCESS KEY TEST SERIES

First Term Examination

Std: 11th Science   **Subject: Chemistry**   **Time: 3Hrs**

Date :   **Chapter 1 To 8**   **Max Marks: 70**

Section A (MCQ & VSA 1 MARKS Questions)

Q.1 Select and write the correct answer: **10**

(i) Solvent refers to the
(a) gas that will dissolve.
(b) solid which dissolve.
(c) liquid which does the dissolving.
(d) liquid that is dissolved.

(ii) Identify the correct statement(s) in relation to the following reaction:
$Zn + 2HCl \rightarrow ZnCl_2 + H_2$
(a) Zinc is acting as an oxidant.
(b) Chlorine is acting as a reductant.
(c) Hydrogen ion is acting as reductant.
(d) Zinc is acting as a reductant.

(iii) _____ have no definite chemical composition and no definite properties.
(a) Atom   (b) Elements   (c) Mixtures   (d) Molecules

(iv) Considering the elements F, Cl, O and N, the correct order of their chemical reactivity in terms of oxidizing property is:
(a) $F > Cl > O > N$
(b) $F > O > Cl > N$
(c) $Cl > F > O > N$
(d) $O > F > N > Cl$

(v) The number of electrons around sulphur in H_2SO_4 are
(a) 8   (b) 10   (c) 12   (d) 14

(vi) Neutron was discovered by
(a) J.J.Thomsan   (b) E.Goldstein   (c) Chadwick   (d) Pauli

(vii) Identify the incorrect one
(a) Be>Mg   (b) Mg>Ca
(c) Sr>Ba   (d) Ba>Ra

(viii) The number of significant figures in 1.50×10^4g is   ....
(a) 2   (b) 3   (c) 4   (d) 6

(ix) In chromatography, which of the following can the mobile phase be made of?
(a) Solid or liquid   (b) Liquid or gas   (c) Gas only   (d) Liquid only

(x) The oxidising agent in the given reaction is: $Fe_2O_3 + 3CO \rightarrow 2Fe + 3CO_2$
(a) Fe_2O_3 (b) CO   (c) Fe   (d) CO_2

Q.2 Answer the following: **8**

(i) Why the metallic radius is greater than covalent radius?

(ii) Define bond length.

(iii) Which element does not have any neutron in it?

(iv) Name the following:
Radioactive alkali metal.

(v) A solution is prepared by dissolving 4g of NaOH in 500 ml of water. Calculate the molarity of solution?

(vi) Give names of two materials used as stationary phase in chromatography.

(vii) Define reduction reaction?

(viii) What is the basic unit of mass in the SI system?

Section B (SA I - 2 MARKS EACH)

Attempt any Eight: 16

Q.3 The electronic configuration of oxygen is written as

$1s^2 2s^2 2p_x^2 2p_y^1 2p_z^1$ and not $1s^2 2s^2 2p_x^2 2p_y^2 2p_z^0$ Explain

Q.4 Alkaline earth metals have low values of electro negativity; which decrease down the group

Q.5 Assuming the atomic weight of a metal M to be 56, find the empirical formula of its oxide containing 70.0% of M.

Q.6 What do you understand by the terms
(a) residue   (b) filtrate.

Q.7 An organic compound containing oxygen, carbon, hydrogen and nitrogen contains 20 % carbon, 6.7 % hydrogen and 46.67 % nitrogen. Its molecular mass was found to be 60. Find the molecular formula of the compound.

Q.8 Explain: Molar mass.

Q.9 Write the outer electronic configuration of the following using orbital notation method. Justify.
Po (belongs to period 6 and group 16)

Q.10 What is volume of carbon dioxide, CO_2 occupying by (i) 5 moles and (ii) 0.5 mole of CO_2 gas measured at STP.

Q.11 State the order of filling atomic orbitals following Aufbau principle.

Q.12 NaCl is an ionic compound but LiCl has some covalent character, explain.

Q.13 Write each of the following numbers in ordinary decimal form:
(a) 3.49×10^{11} (b) 3.75×10^{-1}
(c) 5.16×10^4 (d) 43.71×10^{-4}
(e) 0.011×10^{-3} (f) 14.3×10^{-2}
(g) 0.00477×10^5 (h) 5.00858585

Q.14 List the properties of solvents which make them suitable for crystallization.

Section C (SA II - 3 MARKS EACH)

Attempt any Eight: 24

Q.15 Ge, S and Br belong to the groups 14, 16 and 17, respectively. Predict the empirical formulae of the compounds those can be formed by (i) Ge and S, (i) Ge and Br.

Q.16 Give reasons for:
(a) Sigma (σ) bond is stronger than Pi (π) bond
(b) HF is a polar molecule
(c) Carbon is a tetravalent in nature.

Q.17 Write the drawbacks of Rutherford's model of an atom.

Q.18 Explain the reactions of group 1 and group 2 elements with oxygen.

Q.19 Explain the following terms
(a) Mole fraction   (b) Molarity

Q.20 Calculate the radius and energy associated with the first orbit of He^+

Q.21 Balance the following redox equation by half reaction method.
$Bi(OH)_3(s) + SnO_2^{2-}(aq) \rightarrow SnO_3^{2-}(aq) + Bi(s)$ (basic)

Q.22 Justify that the following reactions are redox reaction; identify the species oxidized/reduced, which acts as an oxidant and which act as a reductant.
(a) $2Cu_2O(s) + Cu_2S(s) \rightarrow 6Cu(s) + SO_2(g)$
(b) $HF(aq) + OH^{\ominus}(aq) \rightarrow H_2O(l) \, 4\text{-} \, F^-(aq)$
© $I_2(aq) + 2S_2O_3^{2\ominus}(aq) \rightarrow S_4O_6^{2\ominus}(aq) + 2I^{\ominus}(aq)$

Q.23 Identify the element with more negative value of electron gain enthalpy from the following pairs. Justify.
(i) CI and Br   (ii) F and O

Q.24 Display electron distribution around the oxygen atom in water molecule and state shape of the molecule, also write H-O-H bond angle

Q.25 Visible light has wavelengths ranging from 400 nm (violet) to 750 nm (red). Express these wavelengths in terms of frequency (Hz). (1 nm = 10^{-9} m)

Q.26 In which group should hydrogen be placed ? In group 1 or group 17? Why?

Section D (SA II - 4 MARKS EACH)

Attempt any Three: **12**

Q.27 Write the rules to assign oxidation number.

Q.28 State and Explain Dalton's atomic theory.

Q.29 Explain in detail about the f block elements.

Q.30 Lewis dot diagrams for the following
(a) Hydrogen (H_2)
(b) Water (H_2O)
(c) Carbon dioxide (CO_2)
(d) Methane (CH_4)
(e) Lithium Fluoride (LiF)

Q.31 Explain the anomalous behavior of copper and chromium.

-------- **All the Best** --------