



CAMBRIAN PUBLIC SCHOOL

KANKE ROAD, RANCHI
REVISION ASSIGNMENT

Subject: Chemistry (042)

Class: XI

Chapter 1 - Some Basic Concept of Chemistry

Answer the following questions

- 1) Calculate the number of atoms in each of the following
 - (a) 52 moles of He
 - (b) 52 u of He.
 - (c) 52 g of He
- 2) What will be the mass of one ^{12}C atom in g?
- 3) How are 0.50 mol Na_2CO_3 and 0.50M Na_2CO_3 different?
- 4) If the density of methanol is 0.793 kg L^{-1} , what is its volume needed for making 2.5L of its 0.25M solution?
- 5) Determine the empirical formula of an oxide of iron which has 69.9% iron and 30.1% oxygen by mass. (Atomic mass Fe = 55.85 amu, O = 16.00 amu).

Chapter 2 - Structure of Atom.

- 6) Calculate the number of protons, neutrons and electrons in $^{80}_{35}\text{Br}$.
- 7) Calculate
 - a) wave number and
 - b) Frequency of yellow radiations having wavelength of $5800 \text{ \AA}$.
- 8) Calculate the energy of a mole of photon of radiations whose frequency is $5 \times 10^{14} \text{ Hz}$?
- 9) Calculate the mass of a photon with wavelength $3.6 \text{ \AA}$.
- 10) A golf ball has a mass of 40g and a speed of 45 m/s. If the speed can be measured within accuracy of 2%, Calculate the uncertainty in position.

Chapter 3 - Classification of Elements and Periodicity in Properties

- 11) Predict the position of the element in the periodic table satisfying the electronic configuration $(n-1)d^1ns^2$ for $n = 4$.
- 12) Which one of the following pairs would have a larger size? explain.
 - a) K or K^+
 - b) O^{2-} or F^-
- 13) Electron gain enthalpy usually becomes less negative from top to bottom in a group. Is there any exception to this generalization? Comment.
- 14) Show by a chemical reaction with water that Na_2O is a basic oxide and Cl_2O_7 is an acidic oxide.
- 15) In term of period and group, where would you locate the element with $Z = 114$?

Chapter 4 - Chemical Bonding and Molecular Structure

- 16) On the basis of VSEPR Theory, predict the shapes of the following
a) ClF_3 b) BrF_5
- 17) Why cane sugar (Sucrose) melts on heating but common salt (Sodium chloride) does not melt so easily?
- 18) Explain the structure of CO_3^{2-} ion in terms of resonance.
- 19) Write the electronic configuration of O_2 molecule in the singlet state.
- 20) Out of MgO and CaO , which one is more hard and why?

Chapter 5 - Chemical Thermodynamics

- 21) For an isolated system $\Delta U = 0$, what will be ΔS ?
- 22) The molar enthalpy of vaporization of acetone is less than that of water why?
- 23) Calculate the entropy change in the surroundings when 1.00 mol of $\text{H}_2\text{O}(\text{l})$ is formed under standard conditions? $\Delta_f H^\circ = -286 \text{ kJ mol}^{-1}$
- 24) The equilibrium constant for a reaction is 10. What will be the value of ΔG° ?
($R = 8.314 \text{ J mol}^{-1}\text{K}^{-1}$, $T = 300\text{K}$)
- 25) Enthalpy of combustion of Carbon to CO_2 is $-393.5 \text{ kJ mol}^{-1}$. Calculate the heat released upon formation of 35.2 g of CO_2 from Carbon and dioxygen gas.
