INDIAN SCHOOL NIZWA

CHEMISTRY WORKSHEET-1

CH-1 SOLID STATE

DATE:_____ NAME:_____ CLASS XII

ANSWER THE FOLLOWING

1.Crystalline solids are anisotropic in nature.What does this statement mean?

2.What is the number of atoms in a unit cell of a simple cubic unit cell?

3.What type of stoichiometric effect is shown by AgCl?

4.Which stoichiometric effect increases the density of a solid?

5.Give an example of ionic solid which shows Frenkel defect.

6.Why does LiCl acquire pink colour when heated in Li vapours?

7.How are the following properties of crystals affected by Schottky and Frenkel defects?

a) Density b) Electrical conductivity

8.In a mixed oxide of a compound, 1/8 th of tetrahedral voids are occupied by cations A, half of octahedral voids are occupied by cation B whereas oxide ions form cubic close packed structure, what will be the formula of oxide? Explain.

9.How would you account for the following?

i) Impurity doped silicon is a semiconductor

ii) Frenkel defects are not found in alkali metal halides.

iii) Some of the very old glass objects appear slightly milky instead of being transparent.

10.What is meant by doping in a semiconductor?

11.What is meant by forbidden zone in reference to band theory of solids?

12.The density of copper metal is 8.95 g/ cm^3. If the radius of copper atom is 127.8 pm , is the copper unit cell a simple cubic or a bcc or a fcc structure?

Given At mass of Cu = 63.54 gm/mol

13. Silver crystallizes in face centred cubic unit cells.Each side of unit cell has a length of 409 pm. What is the radius of silver atom?

14. Iron has a body centred cubic unit cell with a cell dimension of 286.65 pm. The density of iron is 7.874 g/ cm3. Use this information to calculate Avagadro's number. Atomic mass of Fe = 55.845 u.

INDIAN SCHOOL NIZWA

CHEMISTRY WORKSHEET-2

CH-2 SOLUTIONS

DATE:_____ NAME:_____ CLASS XII

ANSWER THE FOLLOWING

1.Define the following: a) ebullioscopic constant b) cryoscopic constant c) van't Hoff factor d) osmosis e) osmotic pressure f) reverse osmosis.

2.Why does molarity of a solution changes with temperature?

3.A and B liquids on mixing produced a warm solution.Which type of deviation is there and why?

4.What is the van't Hoff factor for a compound which undergoes tetramerisation in an Organic solvent?

5.What is the advantage of using osmotic pressure as compared to other colligative properties for the determination of molar masses?

6. Henry's law constant KH for the solution of CH_4 in benzene at 298 K is 4.27 x 10^5 mm Hg. Calculate the solubility of methane in benzene at 298 K 760 mm Hg.

7.A solution is prepared by dissolving 5g of a nonvolatile solute in 95 g of water. It has a vapour pressure 23.375mm Hg at 25 ^{0}c. Calculate the molar mass of solute at 25 ^{0}C. Vapour pressure of pure water at 25 ^{0}C is 23.75 mmHg.

8.A 1.00 molal aqueous solution of trichloroacetic acid is heated to its boiling point. The solution has a boiling point of 100.18 ^{0}c. Determine thevan't Hoff factor for trichloroacetic acid. Kb for water = 0.512 K $kgmol^{-1}$

9.Assuming complete dissociation calculate the expected freezing point of a solution prepared by dissolving 6 g Glauber,s salt Na_2SO_4. 10 H_2O in 0.1 Kg of water.

INDIAN SCHOOL NIZWA

CHEMISTRY WORKSHEET-3

CH-5 SURFACE CHEMISTRY

DATE:_____ NAME:_____ CLASS XII

ANSWER THE FOLLOWING

1. Why does a gas mixed with another gas not form a colloidal system?

2. Why are adsorbate particles attracted and retained on the surface of adsorbent?

3. Explain the terms sorption and desorption.

4. "Chemisorption is highly specific." Illustrate with an example.

5. "Adsorbents in finely divided form are more effective." Why?

6. Name two compounds used as adsorbent for controlling humidity.

7. Mention one shape selective catalyst used to convert alcohol directly into gasoline.

8. 'Generally high temperature is favourable for chemisorption.' Why?

9. Which group elements show maximum catalytic activity for hydrogenation reactions?

10. Why gas masks are used by miners in coal mines while working?

11. Write the chemical reaction involved in the preparation of sulphur sol.

12. Name the enzyme which converts milk into curd. . State Hardy - Schulz rule.

13. State the principle of electrodialysis.

14.Why do colloidal particles show Brownian movement?

15. State the sign of entropy change involved when the molecules of a substances get adsorbed on a solid surface.

16. Why does sky appear blue to us?

17. What happens when hydrated ferric oxide and arsenioussulphide sols are mixed in almost equal proportions?

18. Gelatin is generally added to ice-cream. Why?

INDIAN SCHOOL NIZWA

CHEMISTRY WORKSHEET-4

CH-6 General principles of isolation of elements

DATE:_____ NAME:_____ CLASS XII

Answer the following

1.What is slag?

2. What is the role of graphite rods in electrometallurgy of aluminium ?

3. What is the role of cryolite in electrometallurgy of aluminium?

4. Give names and formulae of major ores of iron,copper andzinc .

5.Write the principle of electro-refining.

6.Describe the method of refining of Zirconium and Titanium.

7.Why copper matte is put in silica lined converter?

8.Why is reduction of metal oxide easier if metal formed is in liquid state at temperature of reduction ?

9. Explain the following:-

(i) Zinc but not copper is used for recovery of Ag from the complex$[Ag(CN)_2]^-$.

(ii) Partial roasting of sulphide ore is done in the metallurgy of copper.

(iii) Extraction of Cu from pyrites is difficult than that from its oxide ore through reduction.

10.Explain the method for obtaining pig iron from magnetite.

11.Describe the principles of extraction of Zinc from zinc blende

12. Describe the principles of extraction of copper from its ore

13. Name the principal ore of aluminium and describe how Al is extracted from its ore.