**JIYA LAL MITTAL DAV PUBLIC SCHOOL**

**GRADE – XII SA-I (SEPT, 2015)**

**SUBJECT – CHEMISTRY**

**TIME: 3hrs. M.M-70**

**General Instructions:**

1. **All questions are compulsory.**
2. **Questions 1 to 5 are very short answer questions and carry 1 mark each.**
3. **Questions 6 to 10 are short answer questions and carry 2 marks each.**
4. **Questions 11 to 22 are also short answer questions and carry 3 marks each.**
5. **Questions 23 is value based question and carry 4 marks.**
6. **Questions 24 to 26 are long answer questions and carry 5 marks each.**
7. Define tyndall effect.
8. Write a method by which lyophobic colloids can be coagulated.
9. Why is bithional added to soap?
10. Define reverse osmosis.
11. What are the units for second order reaction rate constant?
12. What are lyophilic and lyophobic colloids? Which of these sols can be easily coagulated on addition of small amount of electrolyte?
13. Aluminium crystallises in a fcc. structure. Atomic radius of the metal is 125pm. What is the length of side of unit cell of the metal? OR
14. Schottky defect lower the density of related solids.
15. Conductivity of Si increases on doping it with phosphorous.

Give reason for both statements given above.

1. State Henry’s Law and mention its two important applications.
2. Can a zinc spoon is used to stir a solution of copper sulphate? Support your answer with reason.

E0(Zn+2/Zn)= -0.76V E0 Cu+2/Cu = +0.34V.

1. (i) What are ambident ligand? Give two examples.

(ii) What are linkage isomers.

1. If a current of 0.5 A flows through a metallic wire for 2 hours, then how many electrons flow through the wire?
2. Determine amount of CaCl2 (i=2.47) dissolved in 2.5 L of water such that Osmotic pressure is 0.75atm at 27°C. OR

Define Osmosis. Why do we prefer it for determination of molecular mass of macromolecules?

1. An element with molar mass 2.7 X 10-2 kg mol-1 forms a cubic unit cell with edge length 405pm. If its density is 2.7 X 103 kg m-3 . What is the nature of cubic unit cell?
2. Show that the time required for 99% completion of a first order reaction is twice the time taken for completion of 90%.
3. What do you mean by activity and selectivity of a catalyst?
4. (i) State Hardy- Schulze rule.

(ii) Why lyophilic colloid is more stable than lyophobic colloids?

1. (a) Give IUPAC names for following co-ordination compounds.
2. [Co(NH3)4 (H2O) Cl] Cl2
3. [CrCl2(H2O)4] NO3
4. why does low spin octahedral complexes of Nickel are not known?
5. Write names and structure of monomers of following polymers:
6. Buna-5 (ii) Dacron (iii) Neoprene.
7. (i) What are artificial sweetening agents? Give two examples.
8. How do antiseptic differ from disinfectants? Give one example of each?
9. Define: Tranquilizers, Antacids, Broad spectrum antibiotics.
10. Give difference between adsorption and absorption.
11. Calculate packing efficiency in body centered cubic unit cell.
12. Sangeeta’a grandmother is a diabetic patient. Whenever she takes tea or milk without sugar, she says that it is not tasty and she cannot take these. She is very fond of sweets but her family always avoids giving her these. For this, she remains

irritated. Sangeeta being a science student ask her grandmother to use artificial sweetener of low calories. She tried to add these in her tea and mild and started enjoying these.

1. What artificial sweetener Sangeeta can suggests to her grandmother?
2. Why do these not cause harm to diabetic patients?
3. What values do you observe from the above passage?
4. What is crystal field spitting energy? How does the magnitude of decides the actual configuration of d-orbitals in a co-ordination entity? OR
5. What is chelation?
6. Give Geometry, magnetic character and hybridization of [Ni(CN)4]2-
7. The electrical resistance of a column of 0.05M NaOH solution of diameter 1cm and length 50cm is 5.55 X 103 ohm. Calculate its resistivity, conductivity and molar conductivity. OR

Rate constant of a first order reaction becomes six times when temperature is raised from 350k to 400k. calculate activation energy for the reaction.

1. An element has a body centered cubic structure with a cell edge of 288pm. The density of element is 7.2g/cm3. How many atoms are present in 208g of element? OR
2. Why the addition of a non-volatile solute to a volatile solvent lowers its vapour pressure?
3. Give difference between order and molecularity (any four)
4. Define: antiferromagnetism , emulsifier.