SCHOOL EDUCATION DEPARTMENT – VILLUPURAM DISRTICT

SLIP TEST-1

+2 - Chemistry

Total Marks: 25 **Duration: 40 Minutes**

Part-I **(5 x 1 = 5)**

Answer all the questions. Choose the most suitable answer from the given four alternatives and write the option code and the corresponding answer.

1. In the electrolytic refining of silver, which one of the following is used as cathode?

a) Pure silver b) Impure silver c) Carbon rod d) Platinum electrode

2. In froth floatation process, sodium ethyl xanthate is used as a -------

a) Collector b) depressing agent c) frothing agent d) Flux

3. Electrochemical process is used to extract ------

a) Iron b) Lead c) Sodium d) silver

4. Wolframite ore is separated from tinstone by the process of -----

a) Smelting b) Calcination c) Roasting d) Electromagnetic separation

5. Which one of the following ores is best concentrated by froth – floatation method?

a) Magnetite b) Fe_2O_3 c) ZnS d) Cassiterite

Part – II

Answer any THREE Questions. Question No. 9 is compulsory **(3x 2 = 6)**

6. Write note on Aluminothermic process.

7. What is auto reduction? Give example.

8. What are the various steps involved in the extraction of pure metals from their ores?

9. Give the limitations of Ellingham diagram.

Part – III

Answer any THREE Questions. Question No. 13 is compulsory **(3x 3 = 9)**

10. Explain froth floatation method.

11. Explain the refining process of Nickel.

12. Explain the Applications of Ellingham diagram.

13. Describe the role of the following in the process mentioned.

i) Silica in the extraction of copper.

ii) Cryolite in the extraction of aluminium.

iii) Sodium cyanide in froth floatation.

Part – IV

Answer any ONE from the following Questions. **(1x5 =5)**

14. Explain the electrometallurgy of aluminium (Hall Heroult Process).

15. Explain zone refining process with an example.

SCHOOL EDUCATION DEPARTMENT– VILLUPURAM DISTRICT

Slip Test-2
+2 - Chemistry

Total Marks: 25 **Duration: 40 Min**

Part – I

I. Answer all the questions. **(5x 1 = 5)**

1. If the number of close packed spheres be '2' then, the number of tetrahedral voids generated is equal to ----------. a) 2 b) 4 c) 3 d) 0

2. The vacant space in bcc lattice unit cell is -------
a) 74% b) 23% c) 32% d) 26%

3. **Assertion:** Due to Frenkel defect, density of the crystalline solid decreases.
Reason: In Frenkel defect cation and anion leaves the crystal.
a) Both assertion and reason are true and reason is the correct explanation of assertion.
b) Both assertion and reason are true but reason is not the correct explanation of assertion.
c) Assertion is true but reason is false. d) Both assertion and reason are false

4. Which one is not Hydrogen bonded molecular solid?
a) solid ice b) anthracene c) glucose d) urea

5. The total number of Bravais Lattice is -------- a) 4 b) 12 c) 14 d) 8

Part – II

Answer any THREE Questions. Question No. 9 is compulsory **(3x 2 = 6)**

6. Define unit cell.

7. Write Bragg's equation.

8. Give the characteristics of ionic crystals.

9. Calculate the number of atoms in a bcc unit cell?

Part – III

Answer any THREE Questions. Question No. 13 is compulsory **(3x 3 = 9)**

10. Distinguish tetrahedral and octahedral voids.

11. Explain Schottky defect.

12. Explain the types of molecular solids.

13. Barium has a body centered cubic unit cell with a length of 508pm along an edge. What is the density of barium in gcm^{-3}? (M=137.3)

Part – IV

Answer any ONE Question. **(1x5 =5)**

14. Calculate the percentage efficiency of packing in case of face centered cubic crystal.

15. Differentiate crystalline solids and amorphous solids.

SCHOOL EDUCATION DEPARTMENT– VILLUPURAM DISTRICT

Slip Test-3 +2 - Chemistry

Total Marks: 25 **Duration: 40 Min**

Part – I

I. Answer all the questions. **(5x 1 = 5)**

1. An aqueous solution of borax is -------- a) neutral b) acidic c) basic d) amphoteric

2. Duralumin is an alloy of ------ a) Cu,Mn b) Cu,Al,Mg c) Al,Mn d) Al,Cu,Mn,Mg

3. **Assertion(A):** Phenol is more acidic than ethanol

Reason(R): Phenoxide ion is resonance stabilized

a) both assertion and reason are true and reason is the correct explanation of assertion.

b) both (A) and (R) are true but reason is not the correct explanation of assertion.

c) assertion is true but reason is false d) both assertion and reason are false.

4. Which of the following compound can be used as anti-freeze in automobile radiators?

a) methanol b) ethanol c) neopentyl alcohol d) ethylene glycol

5. Carbolic acid is ------- a) Phenol b) Picric acid d) benzoic acid d) phenylacetic acid

Part – II

Answer any THREE Questions. Question No. 9 is compulsory **(3x 2 = 6)**

6. Write a short note on anamolous properties of the first element of p-block.

7. Write Saponification reaction.

8. Give Saytzeff's rule.

9. Give two examples for each of the following. i. icosagens ii. tetragens

Part – III

Answer any THREE Questions. Question No. 13 is compulsory **(3x 3 = 9)**

10. Describe the structure of diborane.

11. Give the uses of silicones.

12. Convert the following. i. Glycerol → acrolein ii. Glycol→ 1,4-dioxane

13. An organic compound (A) of molecular formula C_2H_6O reacts with con. H_2SO_4 at 443K gives an alkene compound (B) & at 413 K gives compound (C), used as an anaesthetic. Identify A, B and C.

Part – IV

Answer any ONE Question. **(1x5 =5)**

14. i. How will you identify borate radical?

ii. Write Fischer Tropsch Synthesis?

15. Write the following reactions.

i. Dow' process ii. Kolbe's reaction iii. Williamson ether synthesis

SCHOOL EDUCATION DEPARTMENT– VILLUPURAM DISTRICT

Slip Test-4 +2 - Chemistry

Total Marks: 25 **Duration: 40 Min**

Part – I

I. Answer all the questions. **(5x 1 = 5)**

1. On hydrolysis, PCl_5 gives ------- a) H_3PO_3 b) PH_3 c) H_3PO_4 d) $POCl_3$

2. The molarity of given orthophosphoric acid solution is 2M. Its normality is

a) 6N b) 4N c) 2N d) 1N

3. Most easily liquefiable gas is -------- a) Ar b) Ne c) He d) Kr

4. Which of the following configuration is more stable?

a) ns^2np^1 b) ns^2np^4 c) ns^2np^5 d) ns^2np^6

5. Which of the following is strongest acid among all? a) HI b) HF c) HBr d) HCl

Part – II

Answer any THREE Questions. Question No. 10 is compulsory **(3x 2 = 6)**

6. How will you prepare bleaching powder?
7. What type of hybridisation occur in a) BrF_5 b) BrF_3
8. Write the reason for the anomalous behaviour of Nitrogen.
9. Write note on the structure of ammonia
10. Draw the structures of i. Caro's acid ii. Marshall acid

Part – III

Answer any THREE Questions. Question No. 15 is compulsory **(3x 3 = 9)**

11. Give the uses of helium.
12. Difference between red phosphorus & white phosphorus
13. Give a reason to support that sulphuric acid is a dehydrating agent.
14. How will you identify sulphate radical?
15. Write the molecular formula and structural formula for the following molecules.
    a) Nitric acid b) dinitrogen pentoxide c) phosphine

Part – IV

Answer any ONE Question. **(1x5 =5)**

16. a. i. What are interhalogen compounds? Give example. (2)
    ii. Write the properties of interhalogen compounds? (3)

[OR]

b. Complete the following reactions.

1. $NaCl + MnO_2 + H_2SO_4 \longrightarrow$
2. $NaNO_2 + HCl \longrightarrow$
3. $P_4 + NaOH + H_2O \longrightarrow$

SCHOOL EDUCATION DEPARTMENT– VILLUPURAM DISTRICT

Slip Test- 5 +2 - Chemistry

Total Marks: 25 **Duration: 40 Min**

Part – I

I. Answer all the questions. **(5x 1 = 5)**

1. The pH of 10^{-5}M KOH solution will be --------- a) 9 b) 5 c) 19 d) 0

2. The pH of an aqueous solution is Zero. The solution is ---------

a) slightly acidic b) strongly acidic c) neutral d) basic

3. $H_2PO_4^-$ the conjugate base of a) PO_4^{3-} b) P_2O_5 c) H_3PO_4 d) $H_2PO_4^{2-}$

4. What is the pH of the resulting solution when equal volumes of 0.1M NaOH and 0.01M HCl are mixed? a) 2.0 b) 3 c) 7.0 d) 12.65

5. Which of the following fluoro compounds is most likely to behave as a Lewis base?

a) BF_3 b) PF_3 c) CF_4 d) SiF_4

Part – II

Answer any THREE Questions. Question No. 10 is compulsory **(3x 2 = 6)**

6. Discuss the Lowry – Bronsted concept of acids and bases.

7. Define solubility product

8. Write the expression for the solubility product of Hg_2Cl_2.

9. Write the limitations of Arrhenius concept

10. Calculate the pH of 0.04M HNO_3 Solution.

Part – III

Answer any THREE Questions. Question No. 15 is compulsory **(3x 3 = 9)**

11. Explain common ion effect with an example

12. Calculate the pH of 0.1M CH_3COOH solution. Dissociation constant of acetic acid is 1.8×10^{-5}

13. How will you differentiate Lewis acid and Lewis base.

14. Derive the relation between pH and pOH

15. Write the expression for the solubility product of $Ca_3(PO_4)_2$

Part – IV

Answer any ONE Question. **(1x5 =5)**

16. a. i. Derive Henderson equation. (3)

ii. Identify the conjugate acid base pair for the following reaction in aqueous solution. (2)

i) $HS^-(aq) + HF \rightleftharpoons F^-(aq) + H_2S(aq)$

ii) $HPO_4^{2-} + SO_3^{2-} \rightleftharpoons PO_4^{3-} + HSO_3^-$

[OR]

b. Derive an expression for Ostwald's dilution law.

SCHOOL EDUCATION DEPARTMENT– VILLUPURAM DISTRICT

Slip Test- 6 +2 - Chemistry

Total Marks: 25 **Duration: 40 Min**

Part – I

I. Answer all the questions. (5x 1 = 5)

1. What is the name of the ligand in $[Co(NH_3)_6]^{3+}$?

a) Ethylenediamine b) Ammonia c) Water d) ammine

2. Which type of isomerism occurs in $[Co(NH_3)_5Br]SO_4$ and $[Co(NH_3)_5SO_4]Br$?

a) hydrate isomerism b) optical c) ionization isomerism d) linkage isomerism

3. According to VBT, what is the geometry of $[Cu(NH_3)_4]^{2+}$?

a) Square planar b) Tetrahedral c) Octahedral d) Trigonal bipyramidal

4. How many geometrical isomers are possible for [Pt(Py)(NH_3)(Br)(Cl)]? a) 3 b) 4 c) 0 d) 15

5. The oxidation state of the central metal atom in $[Ni(CO)_4]$ is -------- a) 1 b) 2 c) 3 d) 0

Part – II

Answer any THREE Questions. Question No. 10 is compulsory (3x 2 = 6)

6. Give two examples of biologically important coordination compounds.

7. Define Coordination number

8. Why the complexes of Sc^{3+}, Cu^{+}, Zn^{2+}, etc... are colourless?

9. What is π-back bonding?

10. Write the IUPAC names for the following complexes.

a. $[Cu(NH_3)_4]SO_4$

b. $[Ag(NH_3)_2]^{+}$

Part – III

Answer any THREE Questions. Question No. 15 is compulsory (3x 3 = 9)

11. Give the difference between double salts and coordination compounds.

12. What is crystal field stabilization energy (CFSE)?

13. What are the limitations of VB theory?

14. What are hydrate isomers? Explain with an example.

15. In the complex, $[Co(NH_3)_5Cl]^{2+}$, identify the following

i. Central metal ion

ii. Ligand(s)

iii. Coordination number

Part – IV

Answer any ONE Question. (1x5 =5)

16. a. Explain the postulates of Werner's theory

[OR]

b. Discuss briefly the nature of bonding in metal carbonyls.

SCHOOL EDUCATION DEPARTMENT– VILLUPURAM DISTRICT

Slip Test- 7 +2 - Chemistry

Total Marks: 25 **Duration: 40 Min**

Part – I

I. Answer all the questions. (5x 1 = 5)

1. Which of the following electrolytic solution has the least specific conductance?

a) 2N b) 0.002N c) 0.02N d) 0.2N

2. 1F = ------- C a) 2.303 b) 96.495 c) 965.40 d) 96500

3. Among the following cells

I) Leclanche cell II) Nickel – Cadmium cell III) Lead storage battery IV) Mercury cell

***Primary cells* are a) I and IV b) I and III c) III and IV d) II and III**

4. *Assertion:* pure iron when heated in dry air is converted with a layer of rust.

***Reason:* Rust has the composition Fe_3O_4**

a) both assertion and reason are true and reason is the correct explanation of assertion.

b) both assertion and reason are true but reason is not the correct explanation of assertion.

c) assertion is true but reason is false d) both assertion and reason are false.

5. The unit of conductivity (kappa) is -------- a) $ohm^{-1}\ m^{-1}$ b) $mho\ m^{-1}$ c) Sm^{-1} d) all of these

Part – II

Answer any THREE Questions. Question No. 10 is compulsory (3x 2 = 6)

6. Why is AC current used instead of DC in measuring the electrolytic conductance?

7. Define Corrosion

8. What is electrochemical series?

9. What is electrochemical equivalent?

10. A solution of silver nitrate is electrolysed for 20 minutes with a current of 2 amperes. Calculate the mass of silver deposited at the cathode is $12.04 \times 10^{-2}\ Sm^{-1}$

Part – III

Answer any THREE Questions. Question No. 15 is compulsory (3x 3 = 9)

11. Write Faraday's laws.

12. State Kohlrausch law.

13. Write a note on sacrificial protection.

14. Write a note on Standard hydrogen electrode (SHE).

15. Calculate the molar conductance of 0.025M aqueous solution of calcium chloride at 25^0C. The specific conductance of calcium chloride is $12.04 \times 10^{-2}\ Sm^{-1}$

Part – IV

Answer any ONE Question. (1x5 =5)

16. a. Derive an expression for Nernst equation

[OR]

b. Describe the construction of Daniel cell. Write the cell reactions.

SCHOOL EDUCATION DEPARTMENT– VILLUPURAM DISTRICT

Slip Test- 8 +2 - Chemistry

Total Marks: 25 **Duration: 40 Min**

Part – I

I. Answer all the questions. **(5x 1 = 5)**

1. Which of the following amines does not undergo acetylation?

a) t – butylamine b) ethylamine c) diethylamine d) triethylamine

2. Secondary nitro alkanes react with nitrous acid to form

a) red solution b) blue solution c) green solution d) yellow solution

3. Which of the following vitamins is water soluble?

a) Vitamin E b) Vitamin K c) Vitamin A d) Vitamin B

4. If one strand of the DNA has the sequence 'ATGCTTGA', then the sequence of complementary strand would be a) TACGAACT b) TCCGAACT c) TACGTACT d) TACGRAGT

5. Which of the following amino acids are achiral? a) Alanine b) Leucine c) Proline d) Glycine

Part – II

Answer any THREE Questions. Question No. 10 is compulsory **(3x 2 = 6)**

6. Write the Zwitter ion structure of alanine

7. Write a note on denaturation of proteins

8. Write a short note on peptide bond

9. Define enzyme? Give example.

10. Classify the following into monosaccharides, oligosaccharides and polysaccharides.

i) Starch ii) fructose iii) sucrose iv) lactose

Part – III

Answer any THREE Questions. Question No. 15 is compulsory **(3x 3 = 9)**

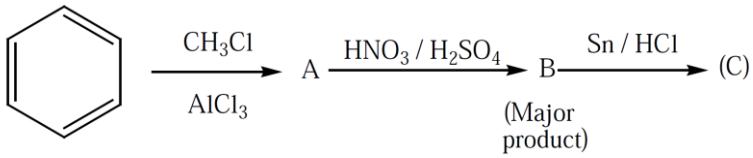
11. There are two isomers with the formula CH_3NO_2 How will you distinguish between them?

12. Write Gomberg reaction.

13. Write a note on Gabriel phthalimide synthesis.

14. Give the differences between DNA and RNA

15. Identify A ,B,C in the following sequence of reactions



Part – IV

Answer any ONE Question. **(1x5 =5)**

16. a. Explain the following reactions

i. Mustard oil reaction ii. Diazotisation reaction

[OR]

b. How will you distinguish between primary secondary and tertiary alphatic amines.