

ST.XAVIER'S HIGHER SECONDARY SCHOOL

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SECOND REVISION TEST

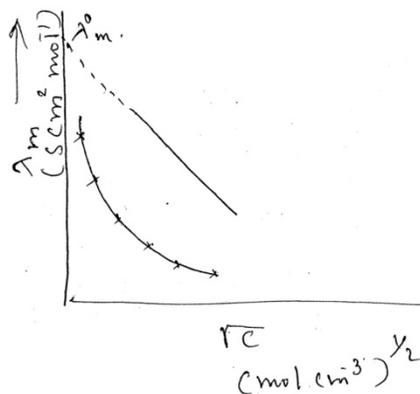
Time : 2 hrs

Max.Marks : 60

HSE – II

CHEMISTRY

- Defect are found even in crystals prepared very carefully.
 - Which stoichiometric defect can cause decrease in density of solid ? (1)
 - Frenkel defect is not found in Sodium Chloride why ? (1)
 - KCl crystal is colourless. But on heating it in an atmosphere of Potassium Vapour, it becomes violet in colour. Account for this (1)
- Molecular mass of certain substances determined by any of the colligative property come to be different from theoretically expected values
 - Mention Two instances for which the above statement is valid (2)
 - Give reasons for which the above statement is valid (1)
 - Which Colligative property is most suitable for the determination of molecular mass of Polymers and why ? (2)
- The following is a plot of molar conductivity of electrolytes A and B against square root of concentration
 - Write the mathematical relationship between Λ_m and C for strong electrolytes (A) (1)
 - Identify the curves represented by strong electrolyte (A) and weak electrolyte (B) (2)
 - What does Λ_m^0 represent ? Give one method for determining Λ_m^0 of the electrolyte B



- Unit of rate constant (K) of a reaction depends on the order of the reaction (2)
 - Explain pseudo first order reaction with suitable examples.
 - Give the unit of 'K' for 'Zero' and 'first' order reactions. (2)
- As₂S₃ SOI particles are negatively charged.
 - What happens when Barium Chloride solution is added to the above SOI ? (1)
 - How do you account for the above process ? (1)
 - What is the effect of adding Aluminum Chloride instead of Barium Chloride? Justify (2)
- (a) Nitrogen and phosphorus belong to group 15 of the periodic table
 - Phosphorus can form 2 series of halides of the type PX₃ and PX₅. Nitrogen does not form Penta halides (N X₅) why ? (1)
 - Name two oxo acids of phosphorus and represent their structures. (2)
- (b) (i) Name the compound of phosphorus similar to ammonia (1)
 - Suggest a method for preparing the above compound in the laboratory. write the balanced chemical equation (2)

7. Zr and 1-F shows similarities in Chemical properties
 (i) Give reason for their similarities in Chemical properties and explain (2)
 (ii) Write the preparation of KMnO_4 from pyrotussle (2)
8. The central metal ion Co^{3+} (Cobalt) with Co-ordination number 6 can form a series of complexes in which both Cl^- and NH_3 are acting as ligands.
 (i) Give the formula of each complex molecule (three molecular) (1½)
 (ii) Give IVPAC names of the complexes (1½)
9. Leaching is a process used for concentration of ore as well as for the extraction of certain metals
 a) What is leaching (1)
 b) How is pure alumina prepared from bauxite ? (2)
 c) Name two metals extracted from leaching (1)
10. You are provided with the following substances
 a) CH_3I , Sodium and dry ether
 b) Benzene, CH_3Cl and AlCl_3
 (i) Name the products formed in each case. (1)
 (ii) Name the reaction. (2)
11. Williamsons synthesis is an important method for ether synthesis
 a) To synthesize tertiary butyl ether, which of the following reagent sets are better ? justify. (2)
 (i) $\text{CH}_3 - \overset{\text{CH}_3}{\underset{\text{CH}_3}{\text{C}}} - \text{Br} + \text{CH}_3\text{ONa}$
 (ii) $(\text{CH}_3)_3\text{C} - \text{ONa} + \text{CH}_3\text{Br}$
 b) explain the cleavage of C-O in $\text{CH}_3\text{CH}_2\text{OCH}_3$ when treated with HI (2)
12. Write Tests to distinguish between
 (i) CH_3CHO and CH_3COCH_3 (1½)
 (ii) 2 Pentanone and 3 pentanone (1½)
13. Aliphatic and Aromatic primary amine when warmed with chloroform and alcoholic KOH solution produce a foul smelling compound which is highly poisonous
 (i) Write the name of the reaction and represent the reaction (1½)
 (ii) An amide on treating with suitable reagents to form an amine with one C-atom less than corresponding amide (1)
 a) Give an example for this reaction
 b) Name the reaction (½)
 (iii) Convert aniline to phenol (1)
14. What happens when glucose is treated with the following reagents
 (i) HI (ii) Bromine water (iii) HNO_3 (IV) HCN (2)
15. 'Polymers' are industrially important molecules
 (i) Write the preparation of Buna-S and Nylon - 66 (2)
 (ii) What are biodegradable Polymers ? Give two examples (2)
16. Antiseptic and disinfectant are chemicals which kill or prevent the growth of Micro-Organism
 (i) What are the major difference in their action (1)
 (ii) Write one example for each of them (1)