2015 (A) Roll No: _____

INTERMEDIATE PART-I (11th CLASS)

CHEMISTRY PAPER-I (NEW SCHEME) TIME ALLOWED: 3.10 Hours

GROUP-II **SUBJECTIVE** MAXIMUM MARKS: 83

NOTE: - Write same question number and its part number on answer book, as given in the question paper.

SECTION-I

2. Attempt any eight parts. **8 × 2 = 16**

(i) Write down any four methods used for the separation of Isotopes.

(ii) Calculate the number of molecules in 10.0 grams of ice.

(iii) Define empirical formula and give two examples.

(iv) Why is there a need to crystallize the crude product?

(v) Why sintered glass crucible is preferred over Gooch Crucible?

(vi) Derive the units of gas constant "R" in general gas equation.

(vii) Write down the causes for deviation from ideal behaviour.

(viii) Define "State" and "State function."

(ix) With the help of an example, explain enthalpy of neutralization.

(x) What is the effect of common ion on solubility?

(xi) Differentiate between "Reversible and Irreversible Reactions."

(xii) Write down the equilibrium constant expression for the dissociation of $PC\ell_5$.

3. Attempt any eight parts. **8 × 2 = 16**

(i) What are Dipole-dipole forces?

(ii) Evaporation causes cooling. Why?

(iii) Ionic solids are brittle. Why?

(iv) Diamond is hard and electrically insulator. Give reason.

(v) State Hund's rule with one example.

(vi) Cathode rays are electrons. Justify.

(vii) Write two Nuclear reactions.

(viii) What is Zeeman Effect?

(ix) What is Octet Rule?

(x) Dipole moment of CO_2 is zero while that of H_2O is 1.85D. Give reason.

(xi) Why $\pi-$bonds are more diffused than sigma bonds?

(xii) What is Coordinate Covalent Bond? Give one example.

4. Attempt any six parts. **6 × 2 = 12**

(i) What are Continuous Solubility Curves? Give an example also.

(ii) Non-ideal solutions do not obey the Raoult's Law. Explain.

(iii) How can you justify that $NaC\ell$ and KNO_3 are used to lower the melting point of ice?

(iv) A porous plate or a salt bridge is not required in lead storage cell. Justify.

(v) Balance the following equation by Oxidation Number Method.
$Zn + HNO_3 \rightarrow Zn(NO_3)_2 + NO + H_2O$

(vi) How Impure Cu can be purified by electrolytic process?

(vii) Define Heterogeneous Catalysis and give an example.

(viii) What is meant by a statement "Catalyst for a Catalyst"?

(ix) What is effect of surface area on rate of a reaction?

P.T.O

SECTION-II

NOTE: - Attempt any three questions of the following:-

5.(a) Differentiate between Isomorphism and Polymorphism. 4

(b) Mg – metal reacts with $HC\ell$ to give hydrogen gas. $Mg + 2HC\ell \rightarrow MgC\ell_2 + H_2$
What is the minimum volume of $HC\ell$ solution (27% by weight) required to produce 12.1 g of H_2?
The density of $HC\ell$ solution is 1.14g/cm^3. 4

6.(a) Discuss Linde's method for the liquefaction of gases. 4

(b) Explain Millikan's oil drop experiment to determine the charge on electron. 4

7.(a) What is Orbital Hybridization? Give its advantages and draw the geometry of CH_4 molecule. 4

(b) Define the term Enthalpy and prove that $\Delta H = q_p$. 4

8.(a) Describe how the rate of a reaction can be measured by a Chemical method? 4

(b) The solubility of PbF_2 at 25^oC is $0.64g\,dm^{-3}$. Calculate K_{SP} of PbF_2. 4
At. Mass of $Pb = 207g\,mol^{-1}$ At. Mass of $F = 19g\,mol^{-1}$

9.(a) What is an azeotropic mixture? Discuss the azeotropic mixture with positive deviation from Raoult's Law. 4

(b) Write a note on Fuel Cells. 4

SECTION-III (PRACTICAL PART)

10. NOTE:- (i) Attempt any three parts. (3 x 5 = 15)

(ii) Write down material required, diagram and procedure for part A & B. (1 + 1 + 3) = 5

(iii) Write down standard solution, chemical equation with mole ratio, indicator with end point, procedure and supposed reading with calculation for part C, D & E. (1 + 1 + 1 + 1 + 1) = 5

(A) Prepare the pure crystals of Benzoic acid from impure sample by using water.

(B) Separate the mixture of inks by using Paper Chromatographic method and also calculate R_f values.

(C) The given solution contains 10g mixture of $HC\ell$ and $NaC\ell$ dissolved per dm^3.
Find out the percentage composition of the sample. (Molecular mass of $HC\ell$ = 36.5)

(D) The given solution contains 27.8g $FeSO_4 \,.\, xH_2O$ dissolved per dm^3. Find out the value of x.
(Molecular weight of $FeSO_4 \,.\, xH_2O = 152 + 18x$)

(E) The given solution contains 20g of Iodine dissolved per dm^3.
Find out the percentage purity of the sample (Molecular weight of Iodine = 254)