

**DELHI PUBLIC SCHOOL, JAMMU**  
**SESSION: (2019-2020)**  
**CYCLE TEST I**

**ASSIGNMENT**

**CLASS: XII**

**SUBJECT: CHEMISTRY**

- Q1. How many electrons flow through a metallic wire if a current of 0.5 A is passed for 2 hours?  
(Given:  $1F = 96,500 \text{ C mol}^{-1}$ ).
- Q2. Why is osmotic pressure of 1M KCl higher than 1M urea solutions?
- Q3. Blood cells are isotonic with 0.9% sodium chloride solution. What happens if we placed blood cells in a solution containing?  
a) 1.2 % sodium chloride solution.  
b) 0.4 % sodium chloride solution.
- Q4. Give reasons for the following:  
i) Iron does not rust even if zinc coating is broken in a galvanised pipe.  
ii) Copper sulphate solution cannot be stored in zinc container.
- Q5. State Henry's law. What is the significance of  $K_H$ ?
- Q6. Calculate the boiling point of solution when 4 g of  $\text{MgSO}_4$  ( $M = 120 \text{ g mol}^{-1}$ ) was dissolved in 100 of water, assuming  $\text{MgSO}_4$  undergoes complete ionization.  
( $K_b$  for water =  $0.52 \text{ K Kg mol}^{-1}$ ).
- Q7. i) Write the formulation for galvanic cell in which the reaction  
 $\text{Cu (s)} + 2\text{Ag}^+(\text{aq}) \rightarrow \text{Cu}^{2+}(\text{aq}) + 2 \text{Ag (s)}$   
Takes place, identify the cathode and anode reaction in it.  
ii) Write Nernst equation calculate the Emf of the following cell  
 $\text{Sn (s)} / \text{Sn}^{2+} (0.04\text{M}) // \text{H}^+ (0.02\text{M}) / \text{H}_2(\text{g}), \text{Pt(s)}$  (Given  $E^0 \text{ Sn}^{2+} / \text{Sn} = -0.14\text{V}$ )
- Q8. Why an electrochemical cell stops working after sometime?
- Q9. How is cell constant calculated from conductance values?
- Q10. What is the effect of temperature on molar conductivity?
- Q11. Why is it not possible to measure single electrode potential?
- Q12. Osmotic pressure of a 0.0103 molar solution of an electrolyte is found to be 0.70 atm at  $27^\circ\text{C}$ . Calculate Van't Hoff factor. ( $R = 0.082 \text{ L atm mol}^{-1} \text{ K}^{-1}$ ).
- Q13. A pressure cooker reduces cooking time for food because  
(1) Cooking involves chemical changes helped by a rise in temperature  
(2) Heat is more evenly distributed in the cooking space  
(3) Boiling point of water involved in cooking is increased  
(4) The higher pressure inside the cooker crushes the food material