



# St. Xavier's Sr. Sec. School

Delhi-54

Class 12  
12-5-2015

First Unit Test in CHEMISTRY

Time : 1 hr.  
M. Marks : 20

1. A cubic solid is made up of two elements P and Q. Atoms of P are present on the corners of the cube and atoms of Q occupy alternate tetrahedral voids. What is the formula of the compound formed between P and Q? (1)
2. What is the reason for conductance in: a) Metals b) Ionic Solids (1)
3. In the following reaction :-  $\text{Zn}^{++} + 2e \rightarrow \text{Zn(s)}$  what mass of zinc ions will be reduced by one mole of electrons? At. mass of zinc is 65. (1)
4. The measured resistance of a conductance cell containing a solution of KCl at 25°C is 1005 ohm. Calculate specific conductance. Given that cell constant =  $1.24\text{cm}^{-1}$ . (1)
5. Define the following:-  
a) Kohlraush's Law of independent migration b) Limiting molar conductivity.  
c) Doping d) Ferromagnetism (2)
6. Differentiate between the following:- (Two points each)  
a) Amorphous solid and crystalline solids.  
b) Schottky defect and Frenkel defect. (2)
7. Calculate the emf of the cell at 298 K in which the following reaction takes place:-  
 $\text{Ni(s)} + 2\text{Ag(0.002M)} \rightarrow \text{Ni}^{2+} + (0.160 \text{ M}) + 2\text{Ag(s)}$   
Given that  $E^\circ_{\text{Cell}} = 1.05\text{V}$ . (2)
8. An element with a molar mass  $2.7 \times 10^{-2} \text{ Kg/mol}$  forms a cubic unit cell with edge length 405 pm. If its density is  $2.7 \times 10^3 \text{ kg/m}^3$ . What is the nature of the cubic unit cell? (Avogadro's no. =  $6.023 \times 10^{23}$ ) (3)
9. The cell in which the following reaction occurs :-  
 $2\text{Fe}^{3+}(\text{aq.}) + 2\text{I}^{-}(\text{aq.}) \rightarrow 2\text{Fe}^{2+}(\text{aq.}) + \text{I}_2(\text{s})$  has  $E^\circ = 0.236\text{V}$  at 298K. Calculate the standard Gibb's energy and the equilibrium constant of the cell. (express the  $K_c$  value in log form). Faraday's constant = 96500C.  $R = 8.31 \text{ JK}^{-1}\text{mol}^{-1}$  (3)
10. a) Only write the reaction involved in Lead storage battery.  
b) Give any two advantages of fuel cells.  
c) What is electrochemical series? Give any one use of it. (3)

-X-X-X-X-X-



# St. Xavier's Sr. Sec. School

Delhi-54