1. In the process of wine making, ripened grapes are crushed so that sugar and enzyme should come in contact with each other and fermentation should start. [What will happen if anaerobic conditions are not maintained](https://schools.aglasem.com/) during this pro[cess?](https://schools.aglasem.com/)
2. How [is Brownian movement responsible for the stability of sols?](https://schools.aglasem.com/)
3. In the A[rrhenius equation, what does the factor corresponds t](https://schools.aglasem.com/)o?
4. Calculate the emf of the following cell at 298 K : Cr(s) / Cr3+ (0.1M) // Fe2+ (0.01M) / Fe(s)

[Given : *E*0 = + 0.30 V]

*Cell*

1. The conductivity of 10-3 mol /L acetic acid at 250C is 4.1 x 10 -5 S cm-1.

 Calculate its degree of dissociation, if 0 for acetic acid at 250C is 390.5 S

*m*

cm2 mol-1.

1. What happens when:
2. Orthophosphorus acid is heated?
3. XeF6 undergoes complete hydrolysis?
4. Identify the following:
5. Oxoanion of chromium which is stable in acidic medium.
6. The lanthanoid element that exhibits +4 oxidation state.
7. The freezing point of benzene decreases by 2.12 K when 2.5 g of benzoic acid (C6H5COOH) is dissolved in 25 g of benzene. If benzoic acid forms a dimer in benzene, calculate the van’t Hoff factor and the percentage association of ben[zoic acid. (Kf for benzene = 5.12 K kg mol-1)](https://schools.aglasem.com/)
8. The ra[te constant for a first order reaction is 60 s-1. How much t](https://schools.aglasem.com/)ime will it take to [reduce 1g of the reactant to 0.0625 g?](https://schools.aglasem.com/)
9. [Solutions of two electrolytes ‘A’ and ‘B’ are diluted. The](https://schools.aglasem.com/) limiting [molar conductivity of ‘B’ increases 1.5 times while that](https://schools.aglasem.com/) of ‘A’ [increases 25times. Which of the two is a strong electrolyte?](https://schools.aglasem.com/) Justify [your answer.](https://schools.aglasem.com/)
10. The products of electrolysis of aqueous NaCl at the respective electrodes are :

Cathode : H2

Anode : Cl2 and not O2. Explain.

1. (i) Write the expression for Freundlich’s equation to describe the behaviour of adsorption from solution.

(ii)What causes charge on sol particles?

(iii)Name the promoter used in the Haber’s process for the manufacture of ammonia.

1. Name the type of reaction involved in the formation of the following polymers from their respective monomers
2. PVC.
3. Nylon6.
4. PHBV.
5. Describe the role of:
6. [NaCN in the extraction of gold from its ore.](https://schools.aglasem.com/)
7. [Cryolite in the extraction of aluminium from pure alumina.](https://schools.aglasem.com/)

[CO in the purification of Nickel](https://schools.aglasem.com/)

1. The m[agnetic moments of few transition metal ions are given below:](https://schools.aglasem.com/)

 **Metal** [**ion Magnetic moment(BM)**](https://schools.aglasem.com/)

 Sc3+ [0.00](https://schools.aglasem.com/) Cr2+ [4.90](https://schools.aglasem.com/)

 Ni2+ [2.84](https://schools.aglasem.com/)

 Ti3+ 1.73

 (at no. Sc = 21, Ti =22, Cr = 24, Ni = 28)

 Which of the given metal ions :

1. has the maximum number of unpaired electrons?
2. forms colourless aqueous solution?
3. exhibits the most stable +3 oxidation state?
4. Consider the standard electrode potential values (M2+ / M) of the elements of the first transition series.

Ti V Cr Mn Fe Co Ni Cu Zn

-1.63 -1.18 -0.90 -1.18 -0.44 -0.28 -0.25 +0.34 -0.76

Explain:

1. Eo value for copper is positive.
2. Eo value of Mn is more negative as expected from the trend.
3. Cr2+ is a stronger reducing agent than Fe2+.
4. **Answe**[**r the following questions**](https://schools.aglasem.com/)
5. [Write the formula of the neutral molecule which is isoelectro](https://schools.aglasem.com/)nic with [ClO-.](https://schools.aglasem.com/)
6. Draw the shape of H2S2O7.
7. Nitric acid forms an oxide of nitrogen on reaction with P4.Write the formula of the stable molecule formed when this oxide undergoes dimerisation.
8. Bleaching action of chlorine is permanent. Justify.

Write the disproportionation reaction of that oxoacid of nitrogen in which nitrogen is in +3 oxidation state.