Chemistry Practical Class 12 Preparation of One Lyophilic and One Lyophobic Sol Viva Questions with Answers

Q1: What are lyophilic and lyophobic sols?

Answer:

Colloidal particles with a high affinity for the dispersion medium are referred to as lyophilic sols. In contrast, colloidal particles with a low affinity or none are referred to as lyophobic sols. The starch solution, for example, is lyophilic, whereas the sulphur solution is lyophobic.

Q2: What is the best way to make a 2% ferric chloride solution?

Answer:

Mixing 2g of ferric chloride in 100 mL of distilled water will give a 2% ferric chloride solution.

Q3: What is meant by the term dialysis?

Answer:

Dialysis is the process of removing electrolytes from a colloid by allowing the latter to diffuse through an animal or vegetable membrane.

Q4: How can we coagulate a lyophilic colloid?

Answer:

The charge and solvation of colloidal particles contribute to the lyophilic solution's stability. As a result, coagulation can occur if these two components are absent. It can be accomplished by mixing electrolytes with a suitable solvent, such as alcohol or acetone.

Q5: Name a few methods of coagulating lyophobic sols.

Answer:

(a) By adding electrolytes.
(b) By boiling.

(c) Electrophoresis.

Q6: While preparing a lyophobic sol, why is it important to clean the apparatus by steaming out the process?

Answer:

Due to the presence of contaminants, the ferric hydroxide solution is affected. As a result, the apparatus is steam cleaned before the experiment.

Q7: Out of lyophilic and lyophobic sols, which could be quickly converted into a gel and why?

Answer:

Because there is a strong affinity between the dispersed phase and the dispersion medium in lyophilic sols, they are easier to convert into gels.

Q8: State the method by which lyophobic sol can be protected.

Answer:

The addition of a lyophilic sol can protect the lyophobic sol.

Q9: Why do hydrophobic sols get coagulated easily?

Answer:

Because the charge on the particle stabilises hydrophobic sols, they are easily coagulated. When the charge is removed by using an electrolyte, the particles tend to cluster together and form an aggregate or precipitate.

Q10: What causes Brownian motion in colloidal solution?

Answer:

Brownian movement is induced by collisions between dispersion medium molecules and chemical particles.

Q11: How will you differentiate between a true solution and a colloidal dispersion?

Answer:

A colloidal dispersion is a turbid translucent mixture, whereas a true solution is a clear transparent solution. The major difference between a true solution and colloidal dispersion is that a true solution is primarily in the liquid state whereas a colloidal dispersion can exist in different phases.

Q12: Differentiate between a gel and a sol.

Answer:

Sol:
1. A colloidal solution's liquid condition is referred to as sol.
2. There is no definite structure to the sol.
3. The sol's dispersion medium could be water.
4. By chilling the sol, it can be transformed into a gel. Dehydrating the sol is simple.
5. The sol has a very low viscosity.
6. Sols are classified as lyophilic or lyophobic.
7. For example - blood.

Gel:
1. A gel is the solid or semi-solid condition of a colloidal solution.
2. The gel has a honeycomb structure to it.
3. Hydrated colloid particles will be used as the gel's dispersion medium.
4. By heating the gel, it can be turned into a liquid.
5. It is impossible to dehydrate the gel.
6. The gel has a very high viscosity.
7. There is no such thing as gel categorization.
8. Fruit jelly and cooked gelatin jelly are two examples.