

Surface Chemistry (Key Points)

ASSERTION -REASON TYPE

A statement of assertion is followed by a statement of reason.

Mark the correct choice from the options given below:

- (a) Both assertion and reason are true and reason is the correct explanation of assertion.
- (b) Both assertion and reason are true but reason is not the correct explanation of assertion.
- (c) Assertion is true but reason is false.
- (d) Both assertion and reason are false.

1. Assertion : A colloidal sol scatters light but a true solution does not.

Reason : The particles in a colloidal sol move slowly than in a true solution.

(Ans - b)

2. Assertion : Activation energy for both the forward and backward reactions is lowered to the same extent by a catalyst.

Reason : A reaction cannot become fast by itself unless a catalyst is added.

(Ans - c)

3. Assertion : Hydrolysis of ester is an example of auto - catalytic reaction.

Reason : A catalyst speeds up the process without participating in the mechanism.

(Ans - c)

4. Assertion : Hydrated ferric oxide can be easily coagulated by sodium phosphate in comparison to KCl.

Reason : Phosphate ions has higher negative charge than chloride ions. Hence, they are more effective for coagulation. (Ans - a)

5. Assertion : During preparation of ice - cream, gelatin is added in it.

Reason : Ice -creams are emulsions which get stabilised by gelatin as it acts as an emulsifying agent. (Ans - a)

One - word Answer

1. Which phenomenon is responsible for formation of delta?

(Ans - Coagulation)

2. Name a cheap material useful for causing artificial rain ?

(Ans - Electrified sand)

SHORT ANSWER QUESTIONS (2 marks each)

Q1). Explain what is observed

(i) **When a beam of light is passed through a colloidal soln.**

(ii) **Electric current is passed through a colloidal soln.**

A1). (i) Scattering of light by the colloidal particles takes place and the path of light becomes visible. This is known as Tyndall effect.

(ii) On passing an electric current, colloidal particles move towards the oppositely charged electrodes where they lose their charge and get coagulated. This process is called electrophoresis.

Q2). Explain: (i) Electrophoresis (ii) Coagulation

A2). (i) The phenomenon involving the migration (movement) of colloidal particles under the influence of electric field towards the oppositely charged electrode

(ii) The process of conversion of sol into precipitate, usually done by addition of suitable electrolytes. If the coagulated particles float on the surface of dispersion medium, the coagulation is known as flocculation.

Q3). What are micelles? Give an example of a micellar system.

A3. Micelles are produced by the aggregation of a large number of ions in concentrated sol.

eg: soap, synthetic detergents..

Q4). (i) Why is ferric chloride preferred over potassium chloride in the case of a cut leading to bleeding?

(ii) Why is desorption important for a substance to act as a good catalyst?

A4. (i) Blood is +vely charged colloid. One molecule of ferric chloride produces 3 –ve chloride ions while one molecule of potassium chloride produces one –ve chloride ion.

Greater the –ve charge, faster the coagulation.

(ii) After the reaction is over between the adsorbed reactants, the process of desorption must take place to remove the product molecules and create space for other reactant molecules to adsorb on the catalyst surface

Q5) Differentiate between lyophilic colloids and lyophobic colloids?

A 5.

Lyophilic colloids	Lyophobic colloids
These are easily formed by direct mixing	These are easily formed by special methods.
articles of colloids are not easily visible even under ultra microscope.	articles of colloids are easily visible under ultra microscope.
These are very stable.	These are unstable.
