Class 12 Chemistry Chapter 5 Surface Chemistry MCQs

1. When the molecules of a substance are kept at the surface of a solid or a liquid, what is the name of the process?

a) Absorption

b) Adsorption

c) Sorption

d) Desorption

Answer: b

Explanation: Adsorption is the process of a substance's molecules accumulating in a larger concentration on the surface of a solid or a liquid. Gases, for example, adsorb on the surface of charcoal.

2. Which of the following assertions about the extent of physisorption is correct?

a) Increases with increase in temperature

b) Decreases with increase in surface area

c) Decreases with increase in the strength of Van der Waals forces

d) Decreases with increase in temperature

Answer: d

Explanation: The process of physisorption is exothermic. A reduction in temperature, according to Le-principle, Chatelier favours an exothermic reaction. As a result, as the temperature rises, the amount of physisorption reduces.

3. Which of the following is a sorption example?

a) Sponge in water

b) Cotton dipped in ink

c) Water on silica gel

d) Oxygen on metal surface

Answer: b

Explanation: Sorption is a process in which both adsorption and absorption take place at the same time. Cotton dipped in ink is one of the few examples of sorption, which includes both adsorption and absorption.

4. Which of the following is not a lyophobic colloidal example?

a) Gold solution

b) Sulphur solution

c) NaCl solution

d) Blood

Answer: c

Explanation: Gold solution, sulphur solution, and blood are colloids in which the dispersed phase has a low affinity for the dispersion medium, and we can't retrieve the solution directly by combining the two phases once they've been separated. As a result, they are classified as lyophobic colloids.

5. Which of the following statements about macromolecular colloids is false?

a) Protein solution is an example for macromolecular colloids

b) Man-made macro-molecules like polythene can form such colloids

c) Silver solution can form macromolecular colloids

d) These are normally of lyophilic type

Answer: c

Explanation: Macromolecules dissolve in appropriate solvents, resulting in colloidal particles. These are often lyophilic in nature, with silver solution serving as an example of lyophilic and multi-molecular colloids.

6. How are different colours used to make gold colloidal solutions?

a) Different diameters of colloidal gold particles

b) Variable valency of gold

c) Different concentration of gold particles

d) Impurities produced by different methods

Answer: a

Explanation: Because the sizes of colloidal gold particles vary, colloidal gold solutions made by different processes have distinct colours. The size of the colloidal particles determines the colour of the solution.

7. Which of the following slows down the reaction rate?

a) Catalytic promoters

b) Homogeneous catalyst

c) Catalytic poison

d) Heterogeneous catalyst

Answer: c

Explanation: A catalytic poison is a chemical that, even if present in tiny levels, disrupts the catalyst's action. For example, any arsenic impurity present in the reacting gas will disrupt the activity of the vanadium pentoxide catalyst in the synthesis of sulphuric acid by contact method.

8. Which of the following increases the pace of catalyst production?

a) Decreasing Ea

b) Increasing Ea

c) Increasing pressure

d) Increasing entropy

Answer: a

Explanation: Because a catalyst lowers the activation energy, more particles can achieve activation energy, resulting in a quicker reaction rate. It only takes a small bit of catalyst. Beyond a certain threshold, increasing the amount of catalyst utilized will not enhance reaction rates.

9. What's the difference between cold cream and vanishing cream?

a) Vanishing cream is a water-in-oil emulsion whereas cold cream is an oil-in-water emulsion

b) Both are examples of water-in-oil emulsions

c) Both are examples of oil-in-water emulsions

d) Vanishing cream is an oil-in-water emulsion whereas cold cream is a water-in-oil emulsion

Answer: d

Explanation: Vanishing cream is an oil-in-water emulsion, which means the dispersed phase is oil and the dispersion medium is water. A water-in-oil emulsion, cold cream, water is the dispersed phase and oil is the dispersion medium.

10. What is the term for a liquid dispersion in another liquid?

a) Emulsion

b) Aerosol

c) Gel

d) Foam

Answer: a

Explanation: Gel is the dispersion of a liquid in a solid. Foam is the dispersion of a gas in a liquid media. Emulsion is the dispersion of a liquid in another liquid. Aerosol is the dispersion of a solid or liquid in a gaseous medium.