

7. SURFACE CHEMISTRY

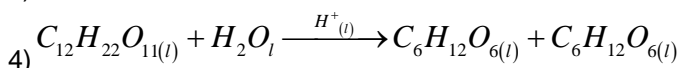
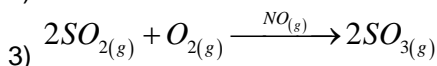
PREVIOUS EAMCET BITS

1. The extent of Physisorption of an adsorbate increases with **(2009 M)**
- 1) increase in temperature
 - 2) decrease in surface area of the adsorbent
 - 3) decrease in pressure of adsorbate
 - 4) decrease in temperature

Ans : 4

Sol: Extent of Physisorption increases with decrease in temperature

2. Which one of the following reactions is an example of auto-catalysis? **(2008 M)**



Ans : 1

Sol: $2AsH_3(s) \rightarrow 2As_3(s) + 3H_2(g)$

As is auto-catalyst

3. Which of the following is not correct **(2007 E)**
- 1) Milk is naturally occurring emulsion
 - 2) Gold is a Lyophilic sol.
 - 3) Physical adsorption decreases with rise in temperature
 - 4) Chemical adsorption is not unilayered

Ans : 2

Sol: Gold is a Lyophobic sol.

4. Disperse phase and Dispersion medium in blood are respectively **(2007 M)**
- 1) Solid and liquid
 - 2) Liquid and solid
 - 3) Liquid and Liquid
 - 4) Solid and solid

Ans : 1

Sol: Blood is Solid in liquid sol.

5. The disperse phase, dispersion medium and nature of colloidal solution (lyophilic or lyophobic) of gold sol' respectively are : **(2006 E)**

- 1) solid, solid, lyophobic
- 2) liquid, liquid, lyophobic
- 3) solid, liquid, lyophobic
- 4) solid, liquid, lyophilic

Ans : 3

Sol: Gold sol Lyophobic sol

Disperse phase - solid

Dispersion medium - liquid

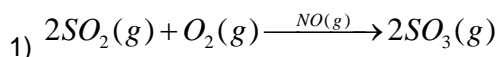
6. Which of the following is not correct **(2006 M)**

- 1) Enthalpy of physical adsorption is less compared to enthalpy of chemical adsorption
- 2) Milk is an example for emulsion
- 3) Physical adsorption increases with the increase the temperature
- 4) Smoke is an aerosol

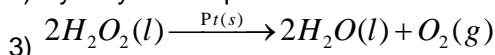
Ans : 3

Sol: Physical adsorption increases with the increase the temperature

7. Which of the following is an example for heterogeneous catalysis reaction ? **(2005 E)**



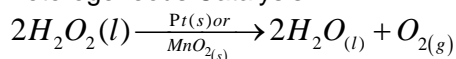
2) Hydrolysis of aqueous sucrose solution in the presence of aqueous mineral acid



4) Hydrolysis of liquid ester in the presence of aqueous mineral acid

Ans : 3

Sol: Heterogeneous Catalysis



8. Which of the following is correct (2005 M)

- 1) Catalyst undergoes permanent chemical change
- 2) Particle size of solute in true solutions is 10^{-3} m
- 3) Starch solution is a hydrosol
- 4) Hydrolysis of liquid ester in the presence of mineral acid is an example of heterogeneous catalysis reactions

Ans : 3

Sol: Starch solution is an aqual sol or hydrosol

9. Which of the following is a lyophobic colloidal solution (2004 E)

- 1) Aqueous starch solution
- 2) Aqueous protein solution
- 3) Gold sol
- 4) Polymer solution in some organic solvents

Ans : 3

Sol: Gold sol is a lyophobic sol.

10. Which one of the following is a lyophilic colloidal solution (2004 M)

- 1) smoke
- 2) Gold sol
- 3) Starch aqueous solution
- 4) cloud

Ans : 3

Sol: Starch aqueous solution is a lyophilic.

11. Which one of the following equation represents Freundlich adsorption isotherm? (2003 E)

$$1) \frac{x}{m} = KP$$

$$2) \frac{x}{m} = KP^n$$

$$3) \log \frac{x}{m} = KP^n$$

$$4) \log \frac{x}{m} = Kn \log P$$

Ans : 2

Sol: Freundlich adsorption isotherm

$$\frac{x}{m} = KP^n$$

12. Colloidal solution of gold prepared by different methods are of different colours because of

[2003 M]

- 1) Variable valency of gold
- 2) Different concentrations of gold particles
- 3) Impurities produced by different methods
- 4) Different diameters of colloidal gold particles

Ans : 4

Sol: Gold sol is blue if particle size is big and red if particle size is small

13. Which one of the following statements is not correct [2002 E]

- 1) Physical adsorption decreases with increase in the temperature

- 2) Physical adsorption is multilayered
 3) Activation energy of physical adsorption is very high.
 4) Enthalpy change of physical adsorption is about 20 KJ mol^{-1}

Ans : 3

Sol: Wrong statement : Activation energy of physical adsorption is very high.
 All others correct.

14. During the cleaning action of soap, part of soap dissolves in the dirt and encapsulates of form 'micelle' **(2002 M)**

- 1) Both hydrophobic and hydrophilic 2) Hydrophilic
 3) Hydrophobic 4) Cation

Ans : 3

Sol: During the cleaning action of soap the hydrophobic part (tail) dissolves the dirt and encapsulates to form 'micelle'

15. Which of the following reactions is an example of heterogenous catalysis? **(2001 E)**

- 1) $2\text{CO}(g) + \text{O}_2(g) \xrightarrow{\text{NO}(g)} 2\text{CO}_2$
 2) $2\text{SO}_2(g) + \text{O}_2(g) \xrightarrow{\text{NO}(g)} 2\text{SO}_3$
 3) $2\text{CO}(g) + \text{O}_2(g) \xrightarrow{\text{Pt}(s)} 2\text{CO}_2$
 4) $\text{CH}_3\text{CHO}_{(g)} \xrightarrow{\text{I}_2(g)} \text{CH}_4 + \text{CO}$

Ans : 3

Sol: In heterogeneous Catalysis, the Catalyst is present in a different phase from those of reactants.

Among the reactions given, only the reaction $2\text{CO}(g) + \text{O}_2(g) \xrightarrow{\text{Pt}(s)} 2\text{CO}_2$ satisfies this condition.

15. Which one of the following salts forms a micelle? **[2001 M]**

1. Sodium formate 2. Sodium acetate
 3. Sodium stearate 4. Sodium Chloride

Ans : 3

Sol: Sodium stearate (ordinary Soap) form a "micelle" or associated colloid.

