

## 7. SURFACE CHEMISTRY

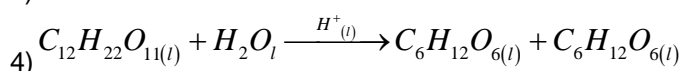
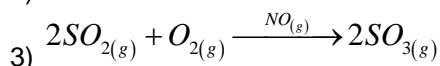
### PREVIOUS EAMCET BITS

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

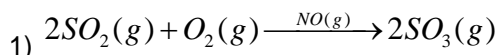
Sol: Gold sol Lyophobic sol  
Disperse phase - solid  
Dispersion medium - liquid

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

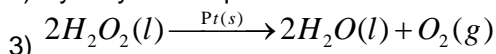
Ans : 3

Sol: Physical adsorption increases with the increase the temperature

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



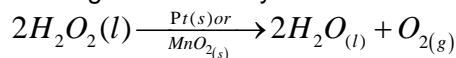
2) Hydrolysis of aqueous sucrose solution in the presence of aqueous mineral acid



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  $20 \text{ KJ mol}^{-1}$

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.

