

Select the correct alternative. (Only one is correct)

- Which gas will be adsorbed on a solid to greater extent.
(A) A gas having non polar molecule
(B) A gas having highest critical temperature (T_c)
(C) A gas having lowest critical temperature.
(D) A gas having highest critical pressure.
- The heat of physisorption lie in the range of
(A) 1 – 10 kJ mol⁻¹
(B) 20 to 40 kJ mol⁻¹
(C) 40 to 200 kJ mol⁻¹
(D) 200 to 400 kJ mol⁻¹
- Adsorption is multilayer in case of
(A) physical adsorption
(B) chemisorption
(C) in both
(D) none of the these
- Reversible adsorption is
(A) chemical adsorption
(B) physical adsorption
(C) both
(D) none
- An emulsion is a colloidal system of
(A) two solids
(B) two liquids
(C) one gas and one solid
(D) one gas and one liquid
- The nature of bonding forces in chemisorption
(A) purely physical such as Van Der Waal's forces
(B) purely chemical
(C) both chemical and physical simultaneously.
(D) none of these
- The Tyndall effect associated with colloidal particles is due to
(A) presence of electrical charges
(B) scattering of light
(C) absorption of light
(D) reflection of light
- Which one of the following is not applicable to chemisorption?
(A) Its heat of adsorption is high
(B) It takes place at high temperature
(C) It is reversible
(D) It forms mono-molecular layers
- In the colloidal state the particle size ranges
(A) below 1 nm
(B) between 1 nm to 1000 nm
(C) more than 1000 nm
(D) none of the above
- Colloids can be purified by
(A) condensation
(B) peptization
(C) coagulation
(D) dialysis
- Milk is an example of
(A) emulsion
(B) suspension
(C) foam
(D) sol.
- Colloidal particles in a sol. can be coagulated by
(A) heating
(B) adding an electrolyte
(C) adding oppositely charged sol
(D) any of the above methods
- Emulsifier is an agent which
(A) accelerates the dispersion
(B) homogenizes an emulsion
(C) stabilizes an emulsion
(D) aids the flocculation of an emulsion
- Fog is a colloidal system of
(A) gas in liquid
(B) liquid in gas
(C) gas in gas
(D) gas in solid
- Given below are a few electrolytes, indicate which one among them will bring about the coagulation of a gold sol. quickest and in the least of molar concentration?
(A) NaCl
(B) MgSO₄
(C) Al₂(SO₄)₃
(D) K₄[Fe(CN)₆]

SBG STUDY

16. When a lyophobic colloidal solution is observed, we can see
 (A) light scattered by colloidal particle
 (B) size of the colloidal particle
 (C) shape of the colloidal particle
 (D) relative size of the colloidal particle
17. The electrical charge on a colloidal particle is indicated by
 (A) Brownian movement (B) electrophoresis
 (C) ultra microscope (D) molecular sieves
18. The minimum concentration of an electrolyte required to cause coagulation of a sol is called
 (A) flocculation value (B) gold number (C) protective value (D) none of these
19. Smoke precipitator works on the principle of
 (A) distribution law (B) neutralization of charge on colloids
 (C) Le-Chatelier's principle (D) addition of electrolytes
20. Which one of following statements is not correct in respect of lyophilic sols?
 (A) There is a considerable interaction between the dispersed phase and dispersion medium
 (B) These are quite stable and are not easily coagulated
 (C) They need stabilizing agent
 (D) The particles are hydrated
21. As_2S_3 sol is
 (A) positive colloid (B) negative colloid (C) neutral colloid (D) none of the above
22. At the critical micelle concentration (CMC) the surfactant molecules
 (A) decompose (B) dissociate
 (C) associate (D) become completely soluble
23. Small liquid droplets dispersed in another liquid is called
 (A) suspension (B) emulsion (C) gel (D) true solution
24. The process which is catalysed by one of the products is called
 (A) acid-base catalysis (B) autocatalysis
 (C) negative catalysis (D) homogeneous catalysis
25. Tyndal effect would be observed in a
 (A) solution (B) solvent (C) precipitate (D) colloidal sol.
26. A liquid is found to scatter a beam of light but leaves no residue when passed through the filter paper. The liquid can be described as
 (A) a suspension (B) oil (C) a colloidal sol. (D) a true solution
27. The ability of an ion to bring about coagulation of a given colloid depends upon
 (A) its charge (B) the sign of the charge alone
 (C) the magnitude of the charge (D) both magnitude and sign of charge
28. An arsenious sulphide sol. carries a negative charge. The maximum precipitating power of this sol. is possessed by
 (A) K_2SO_4 (B) $CaCl_2$ (C) Na_3PO_4 (D) $AlCl_3$
29. Which of the following is an example of associated colloid?
 (A) Protein + water (B) Soap + water (C) Rubber + benzene (D) $As_2O_3 + Fe(OH)_3$
30. Although nitrogen does not adsorb on surface at room temperature, it adsorbs on surface at 83K. Which one of the following statements is correct -
 (A) At 83K, there is formation of monomolecular layer
 (B) At 83K, there is formation of multimolecular layer
 (C) At 83K, nitrogen molecules are held by chemical bonds
 (D) At 83K, nitrogen is adsorbed as atoms.

31. Gold number of a lyophilic sol is such a property that :
- The larger its value, the greater is the peptizing power
 - The lower its value, the greater is the peptizing power
 - The lower its value, the greater is the protecting power
 - The larger its value, the greater is the protecting power
32. Which of the following statements is incorrect regarding physisorptions ?
- Under high pressure it results into multi molecular layer on adsorbent surface
 - Enthalpy of adsorption ($\Delta H_{\text{adsorption}}$) is low and positive
 - It occurs because of Van der Waal's forces
 - More easily liquefiable gases are adsorbed readily
33. The volume of a colloidal particle V_C , volume of a solute particle in a true solution V_t , the volume of suspension particle is V_s can be arranged
- $V_C = V_t = V_s$
 - $V_s < V_C < V_t$
 - $V_s > V_C > V_t$
 - $V_C > V_s > V_t$
34. Which of the following is not the property of physi-sorption -
- Highly specific in nature
 - Reversible
 - Multilayer
 - Exothermic
35. Arrange the following electrolytes in the increasing order of coagulation power for the coagulation of As_2S_3 sol -
- Na_3PO_4
 - $MgCl_2$
 - $AlCl_3$
- $I > II > III$
 - $I < II < III$
 - $I = III < II$
 - $III < I < II$
36. The gas, which is most readily adsorbed on the surface of activated charcoal is -
- N_2
 - H_2
 - O_2
 - SO_2
37. The migration of colloidal particles under the influence of an electrical field is known as
- electro osmosis
 - electrophoresis
 - electrodialysis
 - None
38. Which reaction show the use of heterogenous catalyst
- $2SO_2(g) + O_2(g) \xrightarrow{NO(g)} 2SO_3(g)$
 - $2SO_2(g) + O_2(g) \xrightarrow{Pt(s)} 2SO_3(g)$
 - $CH_3COOCH_3(l) + H_2O(l) \xrightarrow{HCl(l)} CH_3COOH(aq.) + CH_3OH(aq.)$
 - All of the above
39. Promoters and Poison are the substance use in chemical reaction which
- Enhance and decrease the activity of catalyst respectively
 - Decrease and enhance the activity of catalyst respectively
 - Do not have any effect on catalyst
 - Can be used in place of catalyst whenever required
40. Peptization process may be defined as
- Formation of precipitate by adding two ionic solution
 - Conversion of colloidal sol into precipitate
 - Conversion of precipitate into colloidal sol
 - Enrichment precipitate from solution