1. An emulsion is a colloidal dispersion of
(a) A liquid in a gas (b) A liquid in a liquid
(c) A solid in a liquid (d) A gas in a solid

2. In which of the following Tyndall effect is *not* observed
(a) Suspensions (b) Emulsions
(c) Sugar solution (d) Gold sol

3. Size of colloidal particle is
(a) 1 *nm* (b) 1 – 100 *nm*
(c) > 100 *nm* (d) > 1000 *nm*

4. In shaving cream, the dispersion medium is
(a) Liquid (b) Gas
(c) Solid (d) None of these

5. The example of heteropolar sol is
(a) Starch sol in water (b) Rubber sol in water
(c) Protein sol in water (d) Sulphur sol

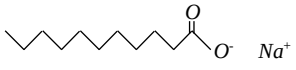
6. Dialysis is the process of separation of
(a) Suspended particles from colloids
(b) Suspended particles from crystalloids
(c) Colloidal particles from crystalloids
(d) Colloidal particles from gel

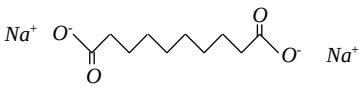
7. $Fe(OH)_3$ when treated with $FeCl_3$ solution a reddish-brown solution is formed. The process involved is
(a) Dispersion (b) Exchange of solvent
(c) Peptization (d) None of these

8. Size of colloidal particle is
(a) 1 to 10 Å (b) 20 to 50 Å
(c) 10 to 1000 Å (d) 1 to 280 Å

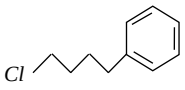
9. Ferric chloride is applied to stop bleeding cut because
(a) Fe^{3+} ion coagulates blood, which is a negatively charged sol
(b) Fe^{3+} ion coagulates blood, which is a positively charged sol
(c) Cl^- coagulates blood, which is a positively charged sol
(d) Cl^- ion coagulates blood, which is a negatively charged sol

10. Which of the following molecules is most suitable to disperse benzene in water

(a) 

(b) 

(c)

(d) 

11. Gold number is related with
(a) Colloids (b) Radioactivity
(c) Gas equation (d) Kinetic energy

12. Which of the following is used for the destruction of colloids
(a) Dialysis (b) Condensation
(c) By ultrafiltration (d) By adding electrolyte

13. Colloidal solutions of gold prepared by different methods have different colours owing to
(a) The difference in the size of the colloidal particles
(b) The fact that gold exhibits a variable valency of + 1 and + 3
(c) Different concentrations of gold
(d) Presence of different types of foreign particles depending upon the method of preparation of the colloid

14. Blood may be purified by
(a) Dialysis (b) Electro-osmosis
(c) Coagulation (d) Filtration

15. Alum helps in purifying water by
(a) Forming Si complex with clay particles
(b) Sulphate part which combines with the dirt and removes it
(c) Aluminium which coagulates the mud particles
(d) Making mud water soluble

16. Colloidal solution of gold cannot be prepared by
(a) Bredig's arc method (b)Mechanical dispersion
(c) Reduction of gold chloride (d)Exchange of solvents

17. Which of the following can stabilize gold sol from coagulation by $NaCl$ solution
(a) $Fe(OH)_3$ (b) Gelatin
(c) As_2S_3 (d) None of these

18. Which of the following substances is not used for preparing lyophilic sols
(a) Starch (b) Gum
(c) Gelatin (d) Metal sulphide

19. Soap essentially forms a colloidal solution in water and removes the greasy matter by
(a) Absorption (b) Emulsification
(c) Coagulation (d) None of these

20. In the case of small cuts, bleeding is stopped by applying potash alum. Here alum acts as
(a) Fungicide (b) Disinfectant

(c) Germicide (d) Coagulating agent

21. Bredig arc method can not be used to prepare colloidal solution of which of the following
(a) *Pt* (b) *Fe*
(c) *Ag* (d) *Au*

22. Which of the following is the best protective colloid
(a) Gelatin (Gold No. = 0.005)
(b) Gum arabic (Gold No. = 0.15)
(c) Egg albumin (Gold No. = 0.08)
(d) None of these

23. A catalyst is a substance which
(a) Is always in the same phase as in the reactions
(b) Alters the equilibrium in a reaction
(c) Does not participate in the reaction but alters the rate of reaction
(d) Participates in the reaction and provide an easier pathway for the same

24. Paste is
(a) Suspension of solid in a liquid
(b) Mechanical dispersion of a solid in liquid
(c) Colloidal solution of a solid in solid
(d) None of these

25. An aerosol is a
(a) Dispersion of a solid or liquid in a gas
(b) Dispersion of a solid in a liquid
(c) Dispersion of a liquid in a liquid
(d) Solid solution

26. The volume of a colloidal particle, V_C as compared to the volume of a solute particle in a true solution V_S, could be
(a) $\frac{V_C}{V_S} \simeq 1$ (b) $\frac{V_C}{V_S} \simeq 10^{23}$
(c) $\frac{V_C}{V_S} \simeq 10^{-3}$ (d) $\frac{V_C}{V_S} \simeq 10^{3}$

27. The disperse phase in colloidal iron (III) hydroxide and colloidal gold is positively and negatively charged, respectivley. Which of the following statements is NOT correct
(a) Magnesium chloride solution coagulates, the gold sol more readily than the iron (III) hydroxide sol
(b) Sodium sulphate solution causes coagulation in both sols
(c) Mixing the sols has no effect
(d) Coagulation in both sols can be brought about by electrophoresis

28. Alum is a water purifier because it
(a) Coagulates the impurities
(b) Softens hard water
(c) Gives taste
(d) Destroys the pathogenic bacteria

29. Muddy water can be purified through coagulation using

(a) Common salt (b) Alums

(c) Sand (d) Lime

30. Lyophilic sols are more stable than lyophobic sols because their particles are

(a) Positively charged (b) Negatively charged

(c) All soluble (d) Attract each other

(e) Are heavier

1. (a)

2. (c) Tyndall effect is not observed in sugar solution due to homogeneous nature.

3. (c)

4. (d)

5. (c) Protein sol in water is a example of heteropolar sol.

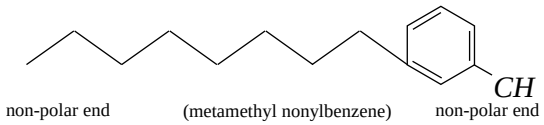
6. (b)

7. (b)

8. (c) The particle size is in the order $10\,\mathring{A} - 1000\,\mathring{A}$.

9. (a) $FeCl_3$ is a electrolyte give Fe^{3+} and blood contain negatively colloid so stop bleeding due to coagulation.

10. (c) Benzene is non polar in nature. As we know that non-polar disperses more to non-polar substances. Therefore, meta-metyl nonylbenzene being nonpolar from both sides will disperse more to benzene. All other substances (a, b and d) have either one side polar or both sides polar.



$\equiv H_{19}C_9 - C_6H_4 - CH_3$

11. (a) The protective action of different colloids is expressed in terms of Gold number.

12. (b)

13. (a)

14. (b)

15. (c) Alum helps in purifying water by Al^{3+} ions which coagulate the negative mud particles.

16. (d)

17. (b)

18. (d) Metal sulphide is not used for preparing lyophilic sol.

19. (b) According to definition emulsification.

20. (c)

21. (b) Bredig's arc method is suitable for the preparation of colloidal solution of metal like gold silver, platinum etc. An arc is struck between the metal electrode under the surface of water containing some stabilizing agent such as a trace of *KOH*. However, *Fe* does not react with alkalies that is why it is not obtained by Bredig's arc method.

22. (a) Protective power $\propto \frac{1}{\text{Gold number}}$

Thus gelatin is the best protective colloid.

23. (c) A catalyst does not participate in the reaction but alters the rate of reaction.

24. (a) Suspension of solid in a liquid.

25. (a) An aerosol is a dispersion of a solid or liquid in a gas.

26. (d) $\frac{V_c}{V_s} = \frac{10^{-5}}{10^{-7}} \approx 10^3$

27. (d) $\frac{V_c}{V_s} = \frac{10^{-5}}{10^{-7}} \approx 10^3$

28. (a) Alum contains many cations and water has many anionic impurities. On adding alum coagulates the suspended impurities and make water fit for drinking purposes.

29. (b) Alum is added to muddy water so as to destroy the bacteria as well as to coagulate the suspended impurities.

30. (c) Lyophilic sols, are more stable than Lyophobic sols because after vaporization its remaining residue, convert into colloidal state after the addition of solvent.