CHEMISTRY

BOOKS - A2Z CHEMISTRY (HINGLISH)

SURFACE CHEMISTRY

Adsorption

1. If x is the amount of adsorbate and m is the amount of absorbent, which of the following relation is not related to absorption process?

A. $\frac{x}{m} = pxT$

B. $\frac{x}{m} = f(p)$ at constant T

C. $\frac{x}{m} = f(T)$ at constant p

D. $p = f(T)$ at constant $\frac{x}{m}$

Answer: B

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2. When the temperature is raise, the viscosity of liquid decreases, this is because,

A. decreased volume of the solution

B. increases in temperature increases the average kinetic energy of molecules, which overcome the

attractive force between them

C. Decreased covalent and hydrogen bond force

D. Increased attraction between molecules

Answer: B

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3. Which one of the following is an incorrect statement for physisorption

A. It is a reversible process

B. It requires less heat of absorption

C. It requires activation energy

D. It takes place at low temperature

Answer: C

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4. Which is correct in case of van der Waals adsorption?

A. High temperature, low pressure

B. Low temperature , high pressure

C. Low temperature , low pressure

D. High temperature, high pressure

Answer: B

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5. According to Langmuir adsorption isotherm, the amount of gas adosobed at very high pressure

A. Reaches a constant limiting value

B. Goes on increasing with pressure

C. Goes on decreasing with pressure

D. Increase first and decreaseing later with pressure

Answer: A

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6. Noble gases are adsorbed by

A. Anhydrous calcium chloride

B. Ferric hydroxide

C. Concentrated H_2SO_4

D. Activated coconut charcoal

Answer: D

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7. The adsorption of gas on a solid surface varies with pressure of the gas in which of the following manner.

A. fast $\rightarrow$ slow $\rightarrow$ independent of the pressure

B. slow $\rightarrow$ fast $\rightarrow$ independent of the pressure

C. Independent of the pressure $\rightarrow$ fast $\rightarrow$ slow

D. Independent of the pressure $\rightarrow$ slow $\rightarrow$ fast

Answer: A

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8. Softening of hard water is done using sodium aluminium silicate (zeolite) . This causes

A. adsorption of Ca^{2+} and Mg^{2+} ions of hard water replacing Na^{+} ions.

B. adsorption of Ca^{2+} and Mg^{2+} ions of hard water replacing Al^{3+} ions.

C. both (a) and (b)

D. none of these

Answer: A

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9. 50ml of 1M oxalic acid is shaken with $0.5g$ of wood charcoal. The final concentration of the solution after adsorption is 0.5M. Amount of oxalic acid absorbed per gm of charcoal is

A. 3.45g

B. 3.15g

C. 6.30g

D. none of these

Answer: C

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10. Langmuir adsorption isotherm is best suitable for :

A. Chemisorptions

B. physisorption

C. both (a) and (b)

D. none of these

Answer: A

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11. Which is not purely surface phenomena?

A. Absorption, viscosity

B. adsorption, Absorption

C. Viscosity , surface tension

D. adsorption, viscosity

Answer: A

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12. Animal charcoal is used in decolourising colour of liquids because it is a good :

A. Adsorbate

B. Adsorbent

C. Oxidising agent

D. Reducing agent

Answer: A

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13. Bone charcoal is used to decolourise sugar. In temperature on physical adsorption?

A. adsorbate, adsorbent

B. both are adsorbent

C. both aer adsorbate

D. adsorbent, adsorbate.

Answer: D

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14. What will be effect of increases in temperature on physical adsorption?

A. it will decrease

B. it will Increase

C. First increase then decrease

D. none of these

Answer: A

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15. Which of the following statements about chemisorption is not applicable?

A. It involves chemical force between adsorbent and adsorbate

B. it is irreversible in nature

C. it involves high heat of adsorption

D. it does not require activation energy

Answer: D

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16. Which one is not the characteristic of chemisorption:

A. Multilayer adsorption

B. Exothermic nature

C. Strong adsorption by adsorption sites

D. irreversible

Answer: A

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17. Gas masks containing activated chrcoal to remove poisonous gases from atmosphere act on principle of :

A. Adsorption

B. Absorption

C. Sorption

D. All of these

Answer: A

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18. 0.2g of fine animal charcoal is mixed with half litre of acetic acid solution and shaken for 30 minutes

A. Concentration remains same

B. Concentration increases

C. concentration of the solution decrease

D. none of these

Answer: C

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19. The equation for Freundlich adsorption isotherm is

A. $\frac{x}{m} = kp^{1/n}$

B. $X = mkp^{1/n}$

C. $x/m = kp^{-n}$

D. All of these

Answer: D

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20. Adsorption due to strong chemical force is called

A. Chemisorptions

B. Physisorption

C. Reversible adsorption

D. Both (b) and (c)

Answer: A

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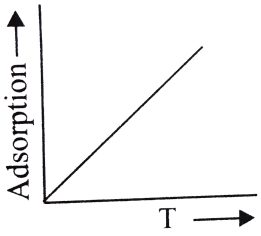
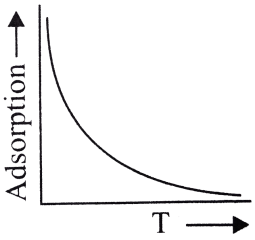
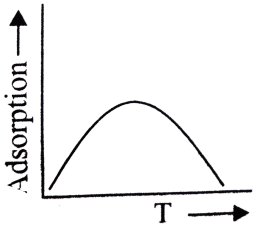
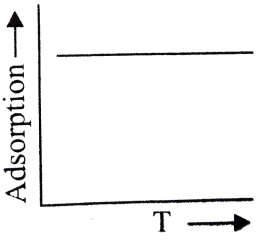
21. Which of the following is the variation of physical adsorption with temperature :

A. 

B. 

C. 

D. 

Answer: B

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22. Catalysts are more effective in

A. Finely powdered state

B. Colloidal state

C. Rough surface

D. All of these

Answer: D

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23. Activated charcoal is used to remove colouring matter from pure substance, it works by

A. Oxidation

B. Reduction

C. Bleaching

D. Adsorption

Answer: D

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24. Adsorption is the phenomenon in which a substance :

A. accumulates on the surface of the other substance

B. goes into the body of the other substance

C. remain close to the other substance

D. none of these

Answer: A

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25. Which is not purely surface phenomena?

A. Surface tension

B. adsorption

C. absortion

D. none of these

Answer: C

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26. Physical adsorption is accompanied by

A. Decreased in entropy of system

B. Decrease in enthalpy

C. The value of $T\Delta S$ is negative

D. All of these

Answer: D

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27. For adsorption of gas on solid surface. The plots of log x/m versus log P is linear with a slope equal to

A. K

B. $\log K$

C. $\log C$

D. $\frac{1}{n}(n \quad \text{being Integer})$

Answer: D

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28. Which forms multimolecular layer during adsorption?

A. Physical adsorption

B. Chemisorptions

C. Both(a) and (b)

D. none of these

Answer: A

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29. In a process , adsorption and absorption take place together. This is defined by

A. desorption

B. adsorption

C. sorption

D. absorption

Answer: C

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30. If H_2 gas is made to adsorb on a surface, then the fraction of surface area of adsorbent covered by gas molecules is proportional to

A. p

B. p^0

C. $p^{1/2}$

D. p^2

Answer: C

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31. Graph between $\log x/m$ and $\log p$ is a straight line inclined at an angle of 45°. When pressure is $0.5atm$ and $1nk = 0.693$, the amount of solute adsorbed per gram of adsorbent will be:

A. 1

B. 1.5

C. 0.25

D. 2.5

Answer: A

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Colloids Classification Preparation And Purification

1. Milk is a colloid in which

A. A liquid is dispersed in liquid

B. A solid is dispersed in liquid

C. Some sugar is dispersed in water

D. A gas is dispersed in liquid

Answer: A

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2. If the dispersed phase is a liquid and the dispersion medium is a solid , the collide is known as a/an

A. sol

B. emulsion

C. gel

D. foam

Answer: C

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3. Collioidal sols can be purified by

A. dialysis

B. ultrafiltration

C. ultracentration

D. ultracentrifugation

Answer: D

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4. the stability of lyophilic colloids is due to

A. Charge on their particles

B. A layer of dispersion medium on their particles

C. The smaller size of their particles

D. The large size of their particles

Answer: B

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5. some of the properties given below are for colloidal sols.

(I) Viscosity is same as that of the medium .

(II) Extensive hydration takes place.

(III) Magration of the particles under electric field.

(IV) Particles cannot be detected even under ultramicroscope.

Properties applicable for lyophillic and lyophobic colloidal sols are

A. lyophillic = (I) and(II) , lyophobic= (III) and (IV)

B. lyophillic = (I) and(III) , lyophobic= (II) and (IV)

C. lyophillic = (II) and(IV) , lyophobic= (I) and (III)

D. lyophillic = (II) and(III) , lyophobic= (I) and (IV)

Answer: C

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6. Gelatin is mostly used in making ice cream in order to

A. prevent making of colloid

B. To stabilise to colloid and prevent crystallisation

C. To stabilise mixture

D. to enrich the aroma

Answer: B

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7. The stability of the dispersed phases in a lyophobic colloids is due to

A. high viscosity of the medium

B. The formation of electrical layer between two phases

C. High surface tension of sol

D. none of these

Answer: B

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8. Which one of the following is not a colloidal solution?

A. Smoke

B. Ink

C. Air

D. Blood

Answer: C

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9. The process of separation of colloids by passing through semi permeable membrane is called :

A. Filtration

B. Electrophoresis

C. Dialysis

D. Ultrafiltration

Answer: C

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10. A liquid aerosol is a colloidal system fo

A. A liquid dispersed in a solid

B. A liquid dispersed in a liquid

C. A gas dispersed in a liquid

D. A solid dispersed in a gas

Answer: B

11. The stabilization of a dispersed phase in a lyophobic colloide sol is due to

A. The adsorption of charged substance on dispersed phase

B. The large electrokinetic potential developed in the colloid

C. The viscosity of the medium

D. the formation of an electrical layer between two phases.

Answer: D

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12. Size of colloidal particle varies from

A. 10^{-7} to $10^{-9}m$

B. 10^{-9} to $10^{-17}m$

C. 10^{-5} to $10^{-7}m$

D. 10^{-4} to $10^{-10}m$

Answer: A

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13. The stablization of a lyophobic colloid is due to :

A. preferential adsorption of similar charged particle on colloids surface.

B. The large electrokinetic potential developed in the colloid

C. the formation of a covalent bond between two phase.

D. the viscosity of the medium.

Answer: A

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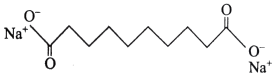
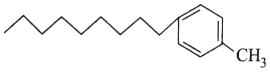
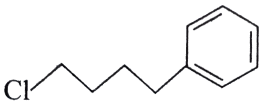
14. Which of the following molecules is most suitable to disperse benzen in water?

A. 

B. 

C. 

D. 

Answer: C

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15. Tyndall effect is shown by

A. colloidal solution

B. Osmotic solution

C. Isotonic solution

D. Hypertonic solution

Answer: A

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16. which one is an example of multimolecular coloid system?

A. soap disperseed in water

B. protein dispersed in water

C. Gold dispersed in water

D. gum dispersed in water

Answer: C

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17. The number of phases in colloidal system are

A. one

B. two

C. three

D. four

Answer: B

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18. surface tension of lyophilic sols is

A. Lower than that of H_2O

B. More than that of H_2O

C. Equal to that of H_2O

D. none of these

Answer: A

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19. smoke is a dispersion of

A. gas in gas

B. gas is solid

C. solid in gas

D. liquid in gas

Answer: C

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20. the colloidal sols are purified by

A. Peptisation

B. Coagulation

C. Dialysis

D. Flocculation

Answer: C

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21. Bredig's arc method cannot be used to prepare colloidal solution of which of the following

A. Pt

B. Fe

C. Ag

D. Au

Answer: B

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22. The stability of hydrophobic sol is due to

A. solvation of colloidal particles

B. The charge on the colloidal particles

C. the size of the particles

D. none of the above

Answer: D

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23. 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. $\frac{V_C}{V_S} \cong 1$

B. $\frac{V_C}{V_S} \cong 10^{23}$

C. $\frac{V_C}{V_S} \cong 10^{-3}$

D. $\frac{V_C}{V_S} \cong 10^{3}$

Answer: D

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24. Lyophilic sols are more stable than lyophobic sols because

A. the colloidal particles have positive charge

B. The colloidal particle have negative charge

C. the colloidal particle are solvated

D. There are strong electrostatic repulsions between the negatively charged colloidal particles

Answer: C

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25. 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

Answer: C

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26. Which one of the following statements is false for hydrophilic sols?

A. they do not require electrolytes for stability

B. their viscosity is less of that of water

C. their surface tension is usually lower than that of despersion medium

D. none of these

Answer: B

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27. A dispersion of $AgCl$ in water is

A. Hydrophilic colloid

B. An emulsion

C. an alcosol

D. hydrophobic sol

Answer: B

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28. Oils and fats are obtained by saponification potassium steatrate. Its formula is $CH_3 - (CH_2)_{16} - COO - K_+$. Lyophobic end of atom is (CH_3) and lyophilic end is $COO - K^+$. Potassium stearate is example of

A. lyophobic colloids

B. lyophobic colloids

C. combined colloids or micelles

D. macromolecular colloids

Answer: C

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29. Which of the following is contributed towards the extra stability of lyophilic colloids?

A. hydration

B. charge

C. colour

D. tyndall effect

Answer: A

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30. As_2S_3 sol is a

A. Positive colloid

B. negative colloid

C. neutral colloid

D. none of these

Answer: B

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31. Which one of the following is not a surfactant?

A. $CH_3-(CH_2)_{15}-\underset{\underset{CH_3}{|}}{\overset{\overset{CH_3}{|}}{N^+}}-CH_3Br^-$

B. $CH_3 - (CH_2)_{14} - CH_2 - NH_2$

C. $CH_3 - (CH_2)_{16} - CH_2OSO_2 - Na^+$

D. $OHC - (CH_2)_{14} - CH_2 - COO - Na^+$

Answer: B

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32. Which fo the folowing statement is not correct for a lyophobic solution?

A. it can be easily solvated and CARRIES CHARGES

B. It carries charges

C. the coagulation of this sol is irreversible in nature

D. it is less stable in a solvent

Answer: A

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33. which of the following statements is correct for a lyophilic solution?

A. it is not easily solvated

B. it is unstable

C. the coagulation of this sol is irreversible in nature

D. is is quite stable is a solvent

Answer: D

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34. Purification of clloids is done by the process of

A. electrophoreses

B. electrodispersion

C. peptization

D. ultrafiltration

Answer: D

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35. which of the following forms cationic micelles above certain concentration?

A. urea

B. cetyltrimethylammonium bromide

C. sodium dodecyl sulphate

D. sodium acetate

Answer: D

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36. For is an example of

A. solid dispersed in gas

B. Liquid dispersed in gas

C. Liquid dispersed in solid

D. Solid dispersed in liquid.

Answer: B

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37. Liquid-Liquid sol is known as

A. aerosol

B. foam

C. emulsion

D. gel

Answer: C

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38. The colloidal system consisting of a liquid adsorbete in a solid adsorbent is termed as:

A. aerosol

B. foam

C. emulsion

D. gel

Answer: D

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39. When dispersed phase is liquid and dispersion medium is gas, then the colloidal system is called

A. smoke

B. clouds

C. emulsion

D. jellies

Answer: B

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40. A liquid is found to scatter a beam of light but leaves no residue when passed through the filter paper.

A. A suspension

B. oil

C. A colloidal sol

D. True solution

Answer: C

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41. Which of the following statements is not correct?

A. A colloidal solution is a heterogeneous two-phase system

B. silver sol in water is an example of lyophilic solution.

C. Metal hydroxide in water are example of lyophobic solution

D. Liquid - liquid colloidal solution in not a stable system

Answer: B

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42. size of colloidal particles may range from:

A. $1 to 1000 nm$

B. $10 to 1000 \pm$

C. $1 to 1000 \mu m$

D. $1 to 10 mm$

Answer: A

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43. which of the following is a hydrophilic colloidal sol?

A. Barium sulphate sol.

B. Arsenious sulphide sol.

C. Starch sol.

D. Silver iodide so.

Answer: C

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44. which characteristic is true in respect of colloidal particle?

A. They always have two phases

B. They are only in liquid state

C. they can't be electrolysed

D. They are only hydrophilic

Answer: A

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45. in which of following system the dispersed phase and dispersion medium are both solid ?

A. foam

B. Dust storm

C. coloured glass

D. Paints

Answer: C

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46. which of the following represents a multimolecular colloidal paricles?

A. Starch

B. A sol of gold

C. Proteins

D. Soaps

Answer: B

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47. Size of colloidal particle is

A. $1 to 10 Å$

B. $20 to 50 Å$

C. $10 to 1000 Å$

D. $1 to 280 Å$

Answer: C

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48. which of the following represents a multimolecular colloidal paricles?

A. Solution of gold

B. Cellulose

C. Soaps

D. Synthetic detergents

Answer: B

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Colloids Properties Coagulation Protection Emulsions And Applications

1. As_2S_3 sol has a negative charge. Capacity to precipitate it is highest in

A. $AlCl_3$

B. Na_3PO_4

C. $CaCl_2$

D. K_2SO_4

Answer: A

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2. The redispersal of a freshly precipitated substance into a sol by the addition of the addition of an electrolyte in common is known as

A. Aggregation

B. Condensation

C. Coagulation

D. Peptization

Answer: D

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3. Which of the following is most effective in coagulating a ferric hydroxide sol ?

A. KCl

B. KNO_3

C. K_2SO_4

D. $K_3[Fe(CN)_6]$

Answer: D

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4. The minimum concentration of an electrolyte required to cause coagulation or flocculation of a sol is called its

flocculation value. It is expressed in

A. $molL^{-1}$

B. gL^{-1}

C. millimoles L^{-1}

D. equivalent L^{-1}

Answer: C

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5. A gel is converted into a sol by shaking it with a disperision medium. After some time it again becomes gel . This property is called

A. Weeping

B. Thixotropy

C. Synersis

D. None

Answer: D

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6. Which of the following electrolytes is least effective in causing flocculation of ferric hydroxide sol?

A. $K_4\left[Fe(CN)_6\right]$

B. K_2CrO_4

C. KBr

D. K_2SO_4

Answer: C

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7. In which of the following Tyndall effect is not observed

A. Suspensions

B. emulsion

C. Sugar solution

D. Gold sol.

Answer: C

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8. Sky looks blue due to

A. Dispersion effect

B. Reflection

C. Transmission

D. Scattering

Answer: D

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9. on addition of 1 ml solution of $10\ \%\ NaCl$ to 10 ml gold sol in the presence of 0.25g of strach, the coagulation is just prevented. Strach has the following gold number

A. 0.025

B. 0.25

C. 0.5

D. 250

Answer: D

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10. The average molecular mass of colloidal can be determined by

A. Tyndall effect

B. Boling of colloidal

C. osmotic pressure measurement

D. Flocculation value

Answer: C

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11. Ferric hydroxide sol is positively charged colloid. The coagulating power of NO_3^-, SO_4^{2-} and PO_4^{3-} ions would

be in the order

A. $NO_3^- > SO_4^{2-} > PO_4^{3-}$

B. $SO_4^{2-} > NO_3^- > PO_4^{3-}$

C. $PO_4^{3-} > SO_4^{2-} > NO_3^-$

D. $NO_3^- = SO_4^{2-} = PO_4^{3-}$

Answer: C

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12. a negatively chaged suspension of clay in water will need for precipitation the minimum amount of

A. Aluminium chloride

B. Potassium sulphate

C. sodium hydroxide

D. Hydrochloric acid

Answer: A

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13. Which type of property is the Brownian movement of colloidal sol?

A. electrical

B. optical

C. mechanical

D. Colligative

Answer: C

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14. Movement of colloidal particles under the influence of electrostatic field is

A. Electrophoresis

B. Electrolysis

C. Dialysis

D. Ionisation

Answer: A

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15. Which of the following substance gives a positively charged sol?

A. Gold

B. A metal sulphite

C. ferric hydroxide

D. An acidic dye

Answer: C

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16. Which of the following is not represented by sols?

A. adsorption

B. Tyndall effect

C. Flocculation

D. Paramagnetism

Answer: D

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17. which of the following electrolytes have maximum coagulationg power ?

A. CCl_4

B. $ZnCl_2$

C. KCl

D. $NaCl$

Answer: B

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18. Arsenic (III) sulphide forms a sol with a negative charge. Which of the following ionic substances should be most effective in coagulating the sol?

A. KCl

B. $MgCl_2$

C. $Al_2(SO_4)_3$

D. Na_3PO_4

Answer: C

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19. Tyndall phenomenon is exhibited by

A. $Nacl$ solution

B. starch solution

C. urea solution

D. $FeCl_3$ solution

Answer: D

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20. Milk can be preserved by adding a few drops of

A. formic acid solution

B. Formaldehyde solution

C. Acetic acid solution

D. Acetaldehyde solution

Answer: D

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21. The pressure of colloidal particles of dust in air imparts blue colour to the sky. This is due to

A. Absorption of light

B. Reflectoin of light

C. Refracton of light

D. Scattering light

Answer: D

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22. Property of the colloidal solution is due to

A. Nature of dispersed phase

B. Nature of dispersion medium

C. Physical state of dispersed phase

D. Temperature of the system

Answer: C

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23. Smoke has generally blue tinge. It is due to

A. scattering

B. coagulation

C. Brownian motion

D. electro-osmosis.

Answer: A

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24. Bleeding is stopped by the application of ferric-chloride this is because:

A. ferric chloride seal the blood cells

B. blood starts flowing in the other direction

C. Blood is coagulated and blood vessel is sealed

D. None of these

Answer: C

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25. Gold number is associated with

A. only lyophobic colloids

B. only lyophilic colloids

C. Both lyophobic and lyophilic colloids

D. None of these

Answer: B

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26. For coagulating As_2S_3 colloidal sol, which of the following will have the lowest coagulation value

A. $NaCl$

B. KCl

C. $BaCl_2$

D. $AlCl_3$

Answer: D

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27. Which one of the following substance gives a positively charged sol?

A. gold

B. A metal sulphide

C. ferric hydroxide

D. An acidic dye

Answer: C

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28. colloidal solution of arsenious sulphide is coagulated by

A. addition of electrolyte

B. addition of non-electrolyte

C. addition of solid As_2S_3

D. None of these

Answer: A

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29. A negatively charged suspension of clay in water will need for precipitation the minimum amount of

A. Aluminium chloride

B. Potassium sulphate

C. sodium hydroxide

D. Hydrochloric acid

Answer: A

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30. If some gelatin is mixed in colloidal solution of gold, then it does

A. Coagulation of gold

B. Peptization of gold

C. protection of gold sol

D. protection of gelatin

Answer: C

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Aiims Questions

1. "Delta' at the rivers are formed due to

A. Peptization

B. Coagulation

C. hydrolysis

D. Precipitation

Answer: B

2. The ability of ion to bring about coagulation of a given collidal solution depends upon

A. its size of ion

B. the magnitude of charge

C. the sign of charge

D. Both magnitude and sign of charge

Answer: D

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3. A coagulating agent frequently added to water to remove the suspended and colloidal impurities is

A. Mohr salt

B. Alum

C. Bleaching powder

D. Copper sulphate

Answer: B

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4. 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^{-} ion coagulates blood, which is a positively charged sol.

D. Cl^{-} ion coagulates blood, which is a negatively charged sol.

Answer: A

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5. Which of the follwing colloids are formed when hydrogen sulphide gas is passed through a cold solution of arsenious oxide?

A. As_2S_3

B. As_2O_3

C. As_2S

D. As_2H_3

Answer: A

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6. An arsenious sulphide sol carries a negative charge . The maximum precipitating power for this sol is possessed by

A. K_2SO_4

B. $CaCl_2$

C. Na_3PO_4

D. $AlCl_3$

Answer: D

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7. 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

Answer: C

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8. Maximum coagulation power is in

A. Na^{+}

B. Ba^{++}

C. Al^{+++}

D. Sn^{++++}

Answer: D

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9. On adding few drops of dilutie HCl or $FeCl_3$ to freshly precipitated ferric hydroxide a red coloured colloidal solution is obtained. The phenomenon is know as

A. Peptization

B. Dialysis

C. Protective action

D. Dissolution

Answer: A

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10. The coagulation of $10cm^3$ of gold sol by $1ml10\ \%\ NaCl$ solution is completely prevented by addition of $0.025g$ of starch to it. The gold number of starch is

A. 0.025

B. 0.25

C. 2.5

D. 25

Answer: D

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11. Gold sol is an electronegative sol. The amount of electrolyte required to coagulate a certain amount of gold sol is maximum in this case of

A. $CaCl_2$

B. $NaCl$

C. $AlCl_3$

D. Na_2SO_4

Answer: C

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12. If gold number of $A, B, C,$ and D are $0.005, 0.05, 0.5$ and 5 respectively , then which of the following will have the highest protective power

A. A

B. B

C. C

D. D

Answer: A

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13. Purple of Cassius is

A. Colloidal solution of gold

B. Colloidal solution of silver

C. Colloidal solution of platinum

D. Oxyacids of gold

Answer: A

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14. Gold number is maximum for the lyophilic sol is

A. Gelatin

B. Haemoglobin

C. Sodium oleate

D. Potato starch

Answer: D

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15. Which of the following ions is most effective in the coagulation of ferric hydroxide solution?

A. Cl^-

B. Br^-

C. NO_2^-

D. SO_4^{2-}

Answer: D

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16. The gold number of A, B, C and D or $0.04, 0.002, 10$ and 25 respectively. Protective power of $A, B, C,$ and D are in order

A. $A > B > C > D$

B. $B > A > C > D$

C. $D > C > B > A$

D. $C > A > B > D$

Answer: B

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17. A colloidal solution is subjected to an electrical field. The particle move towards anode. The coagulation of same sol is studied using $NaCl, BaCl_2$ and $AlCl_3$ solutions. Their coagulating power should be

A. $NaCl > BaCl_2 > AlCl_3$

B. $BaCl_2 > AlCl_3 > NaCl$

C. $AlCl_3 > BaCl_2 > NaCl$

D. $BaCl_2 > NaCl > AlCl_3$

Answer: C

Watch Video Solution

18. Which of the following electrolytes is most effective in the coagulation of gold solution?

A. $NaNO_3$

B. $K_4\left[Fe(CN)_6\right]$

C. Na^3PO_4

D. $MgCl_2$

Answer: B

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19. which of the following will have the highest coagulating power for As_2S_3 colloid?

A. PO_4^{3-}

B. SO_4^{2-}

C. Al^{3+}

D. Na^{+}

Answer: C

Watch Video Solution

20. Point out the false statement

A. Brownian movement and Tyndall effect is shown by colloidal system

B. Gold number is a measure of the protective power of a lyophilic colloid.

C. The colloidal solution of a liquid in liquid is celled is gel

D. Hardy-Schulze rule is related with coagulation

Answer: C

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21. For coagulating As_2S_3 colloidal sol, which of the following will have the lowest coagulation value

A. $NaCl$

B. KCl

C. $BaCl_2$

D. $AlCl_3$

Answer: D

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22. The density of gold is $19g/cm^3$. If 1.9×10^4 of gold is dispersed in one litre of water to give a sol having spherical gold particles of radius $10nm$, then the number of gold particles per mm^3 of the sol will be

A. 1.9×10^{12}

B. 6.3×10^{14}

C. 6.3×10^{10}

D. 2.4×10^{6}

Answer: D

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23. Milk is a colloid in which

A. A liquid is dispersed in liquid

B. A solid is dispersed in liquid

C. A gas dispersed in a liquid

D. Some sugar is dispersed in water.

Answer: A

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24. Tyndall effect in colloidal solution is due to

A. Scattering of light

B. Reflection of light

C. Absorption of light

D. Presence of electrically charged particles

Answer: A

Watch Video Solution

25. Small liquid droplets in another liquid is called

A. Suspensions

B. emulsion

C. Gel

D. True solution

Answer: B

Watch Video Solution

26. colloidal solution of arsenious sulphide is coagulated by

A. addition of electrolyte

B. addition of non-electrolyte

C. addition of solid As_2S_3

D. None of these

Answer: A

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27. Peptisation is :

A. conversion of a colloidal into precipitate form

B. Conversion of precipitate into colloidal sol

C. conversion of metal into colloidal sol by passage of electric current

D. Conversion of colloidal sol into macromolescules

Answer: B

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28. Which of the following is property of colloid?

A. Scattering of light

B. They shown attraction

C. Dialysis

D. Emulsion

Answer: A

Watch Video Solution

29. If some gelatin is mixed in collidal solution of gold, then it does

A. Coagulation of gold

B. Peptization of gold

C. protection of gold sol

D. protction of gelatin

Answer: C

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30. Gold number of a lyophilic sol is such property that:

A. the larger its value, the greater is the peptisting power

B. the lower its value, the greater is the peptisting power

C. the lower its value, the greater is the protecting power

D. the larger its value, the greater is the protecting power

Answer: C

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31. Whipped cream is an example of

A. Dispersion medium = gas, Dispersed phases= Liquid

B. Dispersion medium = Liquid, Dispersed phases= gas

C. Dispersion medium = Liquid, Dispersed phases= Liquid

D. Dispersion medium = Liquid, Dispersed phases= Solid

Answer: B

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32. Protective sols are:

A. lyophilic

B. lyophobic

C. both (a) and (b)

D. none of these

Answer: A

Watch Video Solution

33. A coagulating agent frequently added to water to remove the suspended and colloidal impurities is

A. Mohr salt

B. Alum

C. Bleaching powder

D. Copper sulphate

Answer: B

Watch Video Solution

34. Alum purifies muddy water by

A. dialysis

B. absorption

C. Coagulation

D. Forming a ture solution

Answer: C

Watch Video Solution

35. For the coagulation of $200mL$ of As_2S_3 solution $10mL$ of $1MNaCl$ is required. What is the coagulationg value (number of milimoles of solute needed for coagulation of 1 litre of solution) of $NaCl$.

A. 200

B. 100

C. 50

D. 25

Answer: C

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36. Which of the following can act as protective colloids?

A. Hydrophobic sols

B. Hydrophilic sol

C. Gold sol

D. None of these

Answer: B

Watch Video Solution

37. Toilet soapt is a mixture of

A. Calcium and sodium salts of fatty acids

B. Fatty acids and glycerol

C. sodium salts of fatty acids

D. potassium salt of fatty acids

Answer: D

Watch Video Solution

38. Which of the following ions is most effective in the coagulation of an arsenious suphide solution?

A. K^+

B. Mg^{2+}

C. Al^{3+}

D. C

Answer: C

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39. Platinised asbestos helps in the formation of SO_3 from SO_2 and O_2. But, if even a small amount of As_2O_3 is present the platinised asbestos does not help in the formation of SO_3, As_2O_3 acts here as a/an.

A. positive catalyst

B. negative catalyst

C. autocatalyst

D. poison

Answer: D

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40. A catalyst is a substance which

A. Alters the equilibrium in a reaction

B. is always in the same phases as the reactants

C. participates in the reaction and provides easier pathways for the same

D. does not participate in the reaction but speed it up

Answer: D

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41. The decomposition of hydrogen peroxide can be slowed by the addition of a small amount of acetamide. The latter acts as a

A. Detainer

B. stopper

C. Promoter

D. Inhibitor

Answer: D

Watch Video Solution

42. When $KClO_3$ is heated, it decomposes into $KCl + O_2$, if some MnO_2 is added, the reaction goes much faster because.

A. MnO_2 decomposes to gives O_2

B. MnO_2 provides heat by reacting

C. Better contact is provided by MnO_2

D. MnO_2 acts as a catalyst

Answer: D

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43. which is universally correct for catalyst?

A. A catalyst remain unchanged chemically at the end of chemical reaction.

B. A catayst takes parts in a chemical reaction

C. All kinds of catalysts undergo catalyst posisoning

D. A catalyst physically change at the end of the reacton

Answer: A

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44. In the redox reaction

$$2MnO_4^- + 5C_2O_4^{2-} + 16H^+ \Leftrightarrow 2Mn^{2+} + 10CO_2 + 8H_2O$$

the ion acting as autocatalyst is

A. MnO_4^-

B. $C_2O_4^{2-}$

C. H^+

D. Mn^{2+}

Answer: D

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45. In the reactions $2SO_2 + O_2 \xrightarrow[As_2O_3]{Pt} 2SO_3$, As_2O_3 acts as a

A. Autocatalyst

B. Poison

C. Promoter

D. Positive Catalyst

Answer: B

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46. Which one is false in the following statement?

A. A catalyst is specific in its action

B. A very small amount of the catalyst alters the rate of reaction.

C. The number of free vacancies on the surface of a catalyst increase on sub-division.

D. Ni is used as a catalyst in the manufacture of ammonia.

Answer: D

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47. A catalyst increase rate of reaction by :

A. Decreasing enthalpy

B. Decreasing internal energy

C. Decreased activation energy

D. Increase activation energy

Answer: C

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48. Which of the following types of metal form the most efficient catalysts?

A. Alkali metals

B. Alkaline earth metals

C. Transition metals

D. All of these

Answer: C

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49. Formation of ammonia from H_2 and N_2 by Haber's process using Fe is an example of

A. Heterogeneous catalysis

B. Homogenous catalysis

C. Enzyme catalysis

D. Non-catalytic process

Answer: A

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50. What is the role of a catalyst in a catalysed reaction

A. Lowers the activation energy

B. Increases the activation energy

C. Affects the free energy change

D. Affects the enthalpy change

Answer: A

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51. the catalyst used in the contact process for manufacturing of sulphuric acid is

A. Copper

B. Iron//aluminium oxide

C. Vanadium pentoxide

D. Platinized asbestos

Answer: C

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52. The role of a catalyst in a reversible reaction is to

A. Increase the rate of forward reaction

B. Decrease the rate of backward reaction

C. Alter the equilibrium constant of the reaction

D. Allow the equilibrium to be achieved quickly

Answer: D

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53. Which of the following catalyses the conversion of glucose into ethanol?

A. Zymase

B. Invertase

C. Maltase

D. Diastase

Answer: A

Watch Video Solution

54. Hydorlysis of ethyl acetate is catalysed by aqueous

A. Na_2SO_4

B. K_2SO_4

C. H_2SO_4

D. $BaSO_4$

Answer: C

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55. A catalyst

A. Increase the free energy change in the reaction

B. Decrease the free energy change in the reaction

C. Does not increase or decrease the free energy change in the reaction

D. can either increase or decrease the free energy change depending on what catalyst we use

Answer: C

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56. Which of the following is used as a catalyst in the munfacture of toluene from benzene with CH_3CL?

A. Ni

B. Anhydrous $AlCl_3$

C. Pd

D. Pt

Answer: B

Watch Video Solution

57. Hydrolysis of ethyl acetate is catalysed by aqueous

A. Na_2SO_4

B. K_2SO_4

C. H_2SO_4

D. $BaSO_4$

Answer: C

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58. In the reversible reaction a catalyst is the substance which

A. increases the rate of the forward reaction

B. Decreases the value of enthalpy change in the reaction

C. Reduces the time required for reaching the equilibrium state in the reaction.

D. Decreases the rate of the reverse reaction.

Answer: C

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59. Which of the following is known as a Ziegler-Natta catalyst ?

A. $TiCl_3 + Al(C_2H_5)_3$

B. $TiCl_4 + Al(C_2H_5)_3$

C. $Ti(C_2H_5)_3 + AlCl_3$

D. $Ti(C_2H_5)_4 + AlCl_3$

Answer: B

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60. In the reversible reaction a catalyst is the substance which

A. increases the rate of the forward reaction

B. Decreases the value of enthalpy change in the reaction

C. Reduces the time required for reaching the equilibrium state in the reaction.

D. Decreases the rate of the reverse reaction.

Answer: C

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61. A catalyst is used to

A. Increase the product

B. Increases or decrease the rate of reaction

C. increases or decrease the products

D. Decreases the products

Answer: B

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62. The transition metal used as a catalyst is

A. Nickel

B. Platinum

C. Cobalt

D. All of these

Answer: D

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63. Which of the following reaction is catalysed by enzyme maltase?

A. Starch $\rightarrow$ maltose

B. Maltose $\rightarrow$ Glucose

C. Lactose $\rightarrow$ maltose

D. Maltose $\rightarrow$ glucose + fructose

Answer: B

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64. The effieciency of an enzyme in catalysing a reaction is due to its capacity

A. To form a strong enzyme-substrate complex

B. to decreases the bond energies of substrate molecule

C. To change the shape of the substrate molecule

D. To lower the activation energy of the reaction

Answer: D

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65. which of the following is true about catalyst?

A. It initiates reaction

B. it change equilibrium point

C. it increase average kinetic energy

D. It accelerates the rate of reaction

Answer: D

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66. In which of the following processes, platinum is used as a catalyst

A. Oxidation of ammonial to from nitric acid

B. Hardening of oils

C. Production of synthetic rubber

D. Synthesis of methanol

Answer: A

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67. in the Ostwald's process for the manufacture of HNO_3, the catalyst used is

A. Mo

B. Fe

C. Ni

D. Pt

Answer: D

Watch Video Solution

68. Formation of ammonia from H_2 and N_2 by Haber's process using Fe is an example of

A. Heterogeneous catalysis

B. Homogenous catalysis

C. Enzyme catalysis

D. Non-catalytic process

Answer: C

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69. Amongst the following chemical reactions, the one representing homogeneous catalysis is

A. $N_2(g) + 3H_2(g) \xrightarrow{Fe} 2NH_3(g)$

B. $2SO_2(g) + O_2(g) \xrightarrow{2NO} 2SO_3(g) + 2NO(g)$

C. $CO(g) + 3H_2(g) \xrightarrow{Ni} CH_4(g) + H_2O$

D. $2SO_2 + O_2(g) \xrightarrow{V_2O_5} 2SO_3(g)$

Answer: B

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70. Assertion: Deep electric shock cause death of an animal

Reason: Electric shock coagulate the blood.

A. If both assertion and reason are true and the reason is the correct explanation of the assertion.

B. If both assertion and reason are true and the reason is not the correct explanation of the assertion.

C. If assertion is true but reason is false.

D. If assertion is false but reason is true.

Answer: A

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71. Assertion: All colloidal dispersions give very low ormotic pressure and show very small freezing point depression or boiling point elevation.

Reason: Tyndall effect is due to scattering of light from the surface of colloidal particles.

A. If both assertion and reason are true and the reason is the correct explanation of the assertion.

B. If both assertion and reason are true and the reason is not the correct explanation of the assertion.

C. If assertion is true but reason is false.

D. If assertion is false but reason is true.

Answer: B

72. Assertion: A catalyst is more effective in finely divided form.

Reason: Finely divided form has more surface area.

A. If both assertion and reason are true and the reason is the correct explanation of the assertion.

B. If both assertion and reason are true and the reason is not the correct explanation of the assertion.

C. If assertion is true but reason is false.

D. If assertion is false but reason is true.

Answer: A

Watch Video Solution

73. Assertion: The Brownian movement is due to the bombardment on colloidal particle by the molecules of dispersion midium which are in the constant motion like molecules in a gas.

Reason: Brownian movement provides a visible proof of the random kinetic motion of molecules in a liquid.

A. If both assertion and reason are true and the reason is the correct explanation of the assertion.

B. If both assertion and reason are true and the reason is not the correct explanation of the assertion.

C. If assertion is true but reason is false.

D. If assertion is false but reason is true.

Answer: B

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74. Assertion: In physisorption, adsorption increase with increases in temperature.

Reason: Physisorpation is of exothermic nature.

A. If both assertion and reason are true and the reason is the correct explanation of the assertion.

B. If both assertion and reason are true and the reason is not the correct explanation of the assertion.

C. If assertion is true but reason is false.

D. If assertion is false but reason is true.

Answer: D

Watch Video Solution

75. Assertion: NH_3 absorbs more readily over activted charcoal than CO_2

Reason: NH_3 is non-polar.

A. If both assertion and reason are true and the reason is the correct explanation of the assertion.

B. If both assertion and reason are true and the reason is not the correct explanation of the assertion.

C. If assertion is true but reason is false.

D. If assertion is false but reason is true.

Answer: C

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76. Assertion: Gold number is the measure of protective powers of differents colloids.

Reason: The smaller the gold number of lyophilic colloid, the smaller is its protective power.

A. If both assertion and reason are true and the reason is the correct explanation of the assertion.

B. If both assertion and reason are true and the reason is not the correct explanation of the assertion.

C. If assertion is true but reason is false.

D. If assertion is false but reason is true.

Answer: C

77. Assertion: A sol of As_2S_3 prepared by the action of H_2S on As_2O_3 is negatively power.

Reason: It is due to the presence of S^{2-} ions in the diffused layer.

A. If both assertion and reason are true and the reason is the correct explanation of the assertion.

B. If both assertion and reason are true and the reason is not the correct explanation of the assertion.

C. If assertion is true but reason is false.

D. If assertion is false but reason is true.

Answer: C

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78. Assertion: The property of adsorption is shown by solids to a much larger extent than liquids.

Reason: Solids, particularly when finely divided, have a large surface area.

A. If both assertion and reason are true and the reason is the correct explanation of the assertion.

B. If both assertion and reason are true and the reason is not the correct explanation of the assertion.

C. If assertion is true but reason is false.

D. If assertion is false but reason is true.

Answer: B

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79. Assertion: For arsenic sulphide sol, $BaCl_2$ has higher coagulation value than $NaCl$

Reason : Higher the valency of the oppoistively charged ion of the electrolyte added, higher is the coagulating power of the electrolyte.

A. If both assertion and reason are true and the reason is the correct explanation of the assertion.

B. If both assertion and reason are true and the reason is not the correct explanation of the assertion.

C. If assertion is true but reason is false.

D. If assertion is false but reason is true.

Answer: D

Watch Video Solution

80. Assertion: Tetraethyl lead minimises the knocking effedct when mixed with petrol.

Reason: Because tetraethyl lead acts as a `-Vw catalyst.

A. If both assertion and reason are true and the reason is the correct explanation of the assertion.

B. If both assertion and reason are true and the reason is not the correct explanation of the assertion.

C. If assertion is true but reason is false.

D. If assertion is false but reason is true.

Answer: A

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81. Assertion (A): Micelles are formed by surfactant molecules above the critical micellization concentration (CMC) .

Reason(R): The conductivity of a solution having surfactant molecules decreases sharply at the CMC .

A. If both assertion and reason are true and the reason is the correct explanation of the assertion.

B. If both assertion and reason are true and the reason is not the correct explanation of the assertion.

C. If assertion is true but reason is false.

D. If assertion is false but reason is true.

Answer: B

Watch Video Solution

82. Assertion: Isoelectric point is pH at which colloidal can move towards either of electrode.

Reason: At isoelectric point colloidal particles becomes electrically neutral .

A. If both assertion and reason are true and the reason is the correct explanation of the assertion.

B. If both assertion and reason are true and the reason is not the correct explanation of the assertion.

C. If assertion is true but reason is false.

D. If assertion is false but reason is true.

Answer: D

Watch Video Solution

83. Assertion: Lyophilic colloids are more stable than lyophobic colloids.

Reason: In lyophobic system, the dispersed particles are more solvated than in lyophilic system.

A. If both assertion and reason are true and the reason is the correct explanation of the assertion.

B. If both assertion and reason are true and the reason is not the correct explanation of the assertion.

C. If assertion is true but reason is false.

D. If assertion is false but reason is true.

Answer: C

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84. Assertion(A): Langmuir adsorption is a single-layer phenomenon.

Reason(R): It is due to van der Waals forces.

A. If both assertion and reason are true and the reason is the correct explanation of the assertion.

B. If both assertion and reason are true and the reason is not the correct explanation of the assertion.

C. If assertion is true but reason is false.

D. If assertion is false but reason is true.

Answer: C

Watch Video Solution

85. Assertion: A gas with higher critical temperature gets adsorbed to more extent than a gas with lower critical temperature.

Reason: The easily liquefiable gases get adsorbed to more extent which have higher critical temperature.

A. If both assertion and reason are true and the reason is the correct explanation of the assertion.

B. If both assertion and reason are true and the reason is not the correct explanation of the assertion.

C. If assertion is true but reason is false.

D. If assertion is false but reason is true.

Answer: B

86. Assertion(A): Activity of an enzyme is pH dependent.

Reason(R): Change in pH affects the solution of the enzyme in water.

A. If both assertion and reason are true and the reason is the correct explanation of the assertion.

B. If both assertion and reason are true and the reason is not the correct explanation of the assertion.

C. If assertion is true but reason is false.

D. If assertion is false but reason is true.

Answer: B

Watch Video Solution

87. Assertion: When $AgNO_3$ is treated with excess of Kl, colloidal particles gets attracted to wards anode.

Reason: Colloidal particles adsorb common ions and thus becomes charged.

A. If both assertion and reason are true and the reason is the correct explanation of the assertion.

B. If both assertion and reason are true and the reason is not the correct explanation of the assertion.

C. If assertion is true but reason is false.

D. If assertion is false but reason is true.

Answer: A

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88. Assertion: Colloidal solution exhibit Tyndall effect while true solution particles.

Reason: Because the size of the colloidal particles is large enough to scatter light as compared to size of the true solution particles.

A. If both assertion and reason are true and the reason is the correct explanation of the assertion.

B. If both assertion and reason are true and the reason is not the correct explanation of the assertion.

C. If assertion is true but reason is false.

D. If assertion is false but reason is true.

Answer: A

Watch Video Solution

89. Assertion: Alcohols are dehydrated to hydrocarbons in the presence of acidic zeolites.

Reason: Zeolites are pourous catalysts.

A. If both assertion and reason are true and the reason is the correct explanation of the assertion.

B. If both assertion and reason are true and the reason is not the correct explanation of the assertion.

C. If assertion is true but reason is false.

D. If assertion is false but reason is true.

Answer: B

Watch Video Solution

90. Assertion: Physisorption of molecules occures on surface only.

Reason: in this process, the bonds of the adsorbed molecules are broken.

A. If both assertion and reason are true and the reason is the correct explanation of the assertion.

B. If both assertion and reason are true and the reason is not the correct explanation of the assertion.

C. If assertion is true but reason is false.

D. If assertion is false but reason is true.

Answer: C

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91. Assertion: Medicines in the colloidal state are more effective.

Reason: In the colloidal state, the medicine are easily assimilated by the body.

A. If both assertion and reason are true and the reason is the correct explanation of the assertion.

B. If both assertion and reason are true and the reason is not the correct explanation of the assertion.

C. If assertion is true but reason is false.

D. If assertion is false but reason is true.

Answer: A

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92. Assertion: Fe^{3+} can be used for coagulation of As_2S_3 sol.

Reason: Fe^{3+} reacts with As_2S_3 to give Fe_2S_3.

A. If both assertion and reason are true and the reason is the correct explanation of the assertion.

B. If both assertion and reason are true and the reason is not the correct explanation of the assertion.

C. If assertion is true but reason is false.

D. If assertion is false but reason is true.

Answer: C

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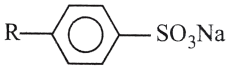
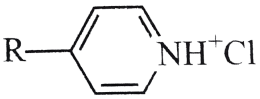
93. Non-electrolyte colloidal surfactants is

A. $C_{17}H_{35}COONa$

B. 

C. $C_nH_{2n+1}(OCH_2CH_2)_xOH$

D. 

Answer: C

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94. Which of the following forms cationic micelles above certain concentration ?

A. Sodium dodecyl sulphate

B. Urea

C. Sodium acetate

D. Cetul trimethyl ammonium bromide

Answer: D

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95. If x is the amount of adsorbate and m is the amount of adsorbent, which of the following relation is related to adsorption process?

A. $x/m = P \times T$

B. $x/m = f(P) \text{at constant} T$

C. $x/m = f(T)$ "at constant" P

D. $P = f(T)$ "at constant" (x/m)

Answer: A

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96. The Langmuir adsorption isotherm is deduced using the assumption.

A. The adsorption sits are equivalent in their ability to adsorb the particles

B. The heat of adsorption varies with coverage

C. The adsorbed molecules interact with each other

D. The adsorption takes place in multilayers

Answer: A

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97. Catalysts

A. lower activation energy

B. increases activation energy

C. may increase or may decreases activation energy

D. bring out equilibrium

Answer: A

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98. The catalytic activity of the transition metals and their compound is ascribed to:

A. their magnetic behaviour

B. their unfilled $d-$ or $bitals$

C. their ability to adopt variable oxidation states

D. their chemical reactivity

Answer: C

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99. In Freundlich adsorption isotherm, the value of $1/n$ is

A. 1 in case of physical adsorption

B. 1 in case of chemisorption

C. between 0 and 1 in all cases

D. between 2 and 4 in all cases

Answer: C

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100. Which one of the following statements is incorrect about enzyme catalysis?

A. Enzymes are denatured by ultraviolet rays and at high temperature.

B. Enzymes are least reactive at optimum temperature.

C. Enzymes are mostly proteinous in nature.

D. Enzyme action is specific.

Answer: B

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101. The protcting power of lyophilic colloidal solution is expressed in terms of

A. critical nicelle concentration

B. oxidatin number

C. coagulation value

D. gold number

Answer: D

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102. Which property of colloids is not dependent on the charge on colloidal particles?

A. Tyndall effect

B. Coagulation

C. Electrophoresis

D. electro-osmosis.

Answer: A

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103. Which one of the following chargcterisitic is associated with adsorption?

A. ΔG and ΔS are negative but ΔH is positive

B. ΔG is negative but ΔH and Δ are positive

C. ΔG, ΔH and ΔS all are negative

D. ΔG and ΔH are negative but ΔS is positive

Answer: C

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104. The pressure of H_2 required to make the potential of $H_2 -$ electrode zero in pure water at 289K is :

A. $10^{-4} atm$

B. $10^{-14} atm$

C. $10^{-12} atm$

D. $10^{-10} atm$

Answer: B

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105. For is a colloidal solution of

A. gas in gas

B. Liquid in gas

C. Gas in liuqid

D. Solid in gas

Answer: B

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106. On which of the following properties does the coagulating power of an ion depend?

A. The magnitude of the charge on the ions alone.

B. Size of the ion alone

C. Both magnitude and sign of the charges on the ion

D. The sign of charge on the ion alone

Answer: B

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107. Physical adsorption is inversely propertional to the

A. volume

B. Concentration

C. temperature

D. All of these

Answer: C

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108.

$$\underset{Sucrose}{C_{12}H_{22}O_{11}} + H_2O \xrightarrow{dil.\,H_2SO_4} \underset{Fructose}{C_6H_{12}O_6(aq)} + \underset{Glucose}{C_6H_{12}O_6(aq)}$$

In this reaction, dilute H_2SO_4 is called

A. homegeneous catalyst

B. Homogenous catalysis

C. heterogeneous catalysis

D. heterogeneous catalyst

Answer: B

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109. Catalyst used in hydrogention of oils is

A. Pt

B. Mo

C. Fe

D. Ni

Answer: D

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110. Catalyst used in the oxidation of $SO_2 \rightarrow SO_3$

A. Nickel

B. $ZnO.\ Cr_2O_3$

C. V_2O_5

D. Iron

Answer: C

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111. Which requries catayst

A. $S + O_2 \rightarrow SO_2$

B. $2SO_2 + O_2 \rightarrow 2SO_3$

C. $C + O_2 \rightarrow CO_2$

D. All

Answer: B

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112. the stability of lyophilic colloids is due to

A. Charge on their particles

B. A layer of dispersion medium on their particles

C. The smaller size of their particles

D. The large size of their particles

Answer: B

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113. Movement of colloidal particles under the influence of electrostatic field is

A. electrophoresis

B. Electrolysis

C. Dialysis

D. Ionisation

Answer: A

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114. Size of collidal particles varries from

A. 10^{-7} to $10^{-9}m$

B. 10^{-9} to $10^{-17}m$

C. 10^{-5} to $10^{-7}m$

D. 10^{-4} to $10^{-10}m$

Answer: A

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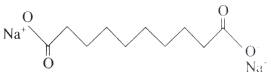
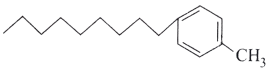
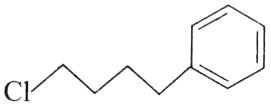
115. Which of the following molecules is most suitable to disperse benzen in water?

A. 

B. 

C. 

D. 

Answer: C

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116. On adding few drops of dilutie HCl or $FeCl_3$ to freshly precipitated ferric hydroxide a red coloured

colloidal solution is obtained. The phenomenon is know as

A. Peptization

B. Dialysis

C. Protective action

D. Dissolution

Answer: A

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117. Bredig's arc method cannot be used to prepare colloidal solution of which of the following

A. Pt

B. Fe

C. Ag

D. Au

Answer: B

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118. Which one of the following is not a surfactant?

A. $CH_3 - (CH_2)_{15} - \overset{\overset{CH_3}{|}}{\underset{\underset{CH_3}{|}}{N^+}} - CH_3Br^-$

B. $CH_3 - (CH_2)_{14} - CH_2 - NH_2$

C. $CH_3 - (CH_2)_{16} - CH_2OSO_2 - Na^+$

D. $OHC - (CH_2)_{14} - CH_2 - COO - Na^+$

Answer: A

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119. As_2S_3 has a negative charge. Capacity to precipate it is highest in

A. $AlCl_3$

B. Na_3PO_4

C. $CaCl_2$

D. K_2SO_4

Answer: A

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120. The coagulation of $200mL$ of a positive colloid took place when $0.73gHCl$ was added to it without changing the volume much. The flocculation value of HCl for the colloid is

a. 36.5 , b. 100 , c. 200 , d. 150

A. 100

B. 36.5

C. 0.365

D. 150

Answer: A

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121. Which of following statement is incorrect?

A. On peolonged dialysis colliods becomes stable

B. $AgNO_3$ in excess Kl forms negative colloid

C. $AgNO_3$ in excess Kl forms positive colloid

D. Medicines work best in colloidal form because of greater surface area

Answer: B

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Assertion Reasoning Questions

1. Assertion: Sky appears blue colour.

Reason: Colloidal particles of dust scatter blue light.

A. If both assertion and reason are true and the reason is the correct explanation of the assertion.

B. If both assertion and reason are true and the reason is not the correct explanation of the assertion.

C. If assertion is true but reason is false.

D. If assertion is false but reason is true.

Answer: A

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2. Assertion(A): The micelle formed by sodiumm stearate in water has -COO groups at the surface.

Reason(R): Surface tension of water is reduced by addition of stearate.

A. If both assertion and reason are true and the reason is the correct explanation of the assertion.

B. If both assertion and reason are true and the reason is not the correct explanation of the assertion.

C. If assertion is true but reason is false.

D. If assertion is false but reason is true.

Answer: B

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3. Assertion: Aquenous gold colloidal solution is red in colour.

Reason: The colour ariesedue to scattering of light by colloidal gold particles.

A. If both assertion and reason are true and the reason is the correct explanation of the assertion.

B. If both assertion and reason are true and the reason is not the correct explanation of the assertion.

C. If assertion is true but reason is false.

D. If assertion is false but reason is true.

Answer: A

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4. Assertion: A quious gold colloidal solution is red in colour.

Reason: The colour arises due to scattering of light by colloidal gold particles.

A. If both assertion and reason are true and the reason is the correct explanation of the assertion.

B. If both assertion and reason are true and the reason is not the correct explanation of the assertion.

C. If assertion is true but reason is false.

D. If assertion is false but reason is true.

Answer: A

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5. Assertion: $Fe(OH)_3$ and As_2S_3 colloidal sol on mixing precipitates.

Reason: $Fe_{OH\ -}(3)$ and As_2S_3 combine and form new compistion precipate.

A. If both assertion and reason are true and the reason is the correct explanation of the assertion.

B. If both assertion and reason are true and the reason is not the correct explanation of the assertion.

C. If assertion is true but reason is false.

D. If assertion is false but reason is true.

Answer: C

6. Assertion: The surface tension of water is more than other liquid.

Reason: Water molecules have strong intermolecular H-bonding as attractive force.

A. If both assertion and reason are true and the reason is the correct explanation of the assertion.

B. If both assertion and reason are true and the reason is not the correct explanation of the assertion.

C. If assertion is true but reason is false.

D. If assertion is false but reason is true.

Answer: A

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Section D Chapter End Test

1. Which of the following is contributed towards the extra stability of lyophilic colloids?

A. hydration

B. charge

C. colour

D. tyndall effect

Answer: A

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2. Which of the following methods is used for sol destruction?

A. Condenstion

B. Dialysis

C. Diffusion through animal membrane

D. addition of an electrolyte

Answer: D

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3. The decomposition of hydrogen peroxide can be slowed by addition of a small amount of acetamide .

A. Detainer

B. stopper

C. Promoter

D. Inhibitor

Answer: D

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4. The ability of ion to bring about coagulation of a given collidal solution depends upon

A. Its size

B. The magnitude of its charge only

C. The sign of its charge

D. Both the magnitude and the sign of its charge

Answer: D

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5. Which one of the following is an incorrect statement for physisorption

A. It is a reversible process

B. It requires less heat of absorption

C. it requires activation energy

D. it takes place at low temperature

Answer: C

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6. Which is not colloidal?

A. Chloropyll

B. Egg

C. Ruby glass

D. Milk

Answer: A

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7. Which one of the following is not a surfactant?

A. $CH_3 - (CH_2)_{15} - \overset{\overset{CH_3}{|}}{\underset{\underset{CH_3}{|}}{N^+}} - CH_3Br^-$

B. $CH_3 - (CH_2)_{14} - CH_2 - NH_2$

C. $CH_3 - (CH_2)_{16} - CH_2OSO_2 - Na^+$

D. $OHC - (CH_2)_{14} - CH_2 - COO - Na^+$

Answer: B

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8. Size of colloidal particles is

A. $0.1m\mu$ to $0.001m\mu$

B. 10μ to 20μ

C. $0.05m\mu$ to $0.1m\mu$

D. 25μ to 30μ

Answer: A

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9. Which of the following electrolytes is most effective in the coagulation of gold solution?

A. $NaNO_3$

B. $K_4\left[Fe(CN)_6\right]$

C. Na^3PO_4

D. $MgCL_2$

Answer: B

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10. A catalyst is used in a reaction to

A. Change the nature of reaction products

B. Increase the reaciton yield

C. Decreased the need for reactants

D. Decrease the time required for the reaction

Answer: D

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11. Which of the following is not represented by sols?

A. Absorption

B. Tyndall effect

C. Flocculation

D. Paramagnetism

Answer: D

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12. Example of an intrinsic colloid is

A. Glue

B. Sulphar

C. Fe

D. As_2H_3

Answer: A

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13. colloidal solution of arsenious sulphide is coagulated by

A. Electrodispersion method

B. Peptization

C. Double decomposition

D. Hydrolysis

Answer: C

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14. Gold number gives

A. The amount of gold present in the colloid

B. The amount of gold required to break the colloid

C. The amount of gold required to protect the colloid

D. None of these

Answer: D

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15. Point out the false statement

A. Brownian moventment and Tyndall effect is shown by colloidal system

B. Gold number is a measure of the protective power of a lyophilic colloid.

C. The colloidal solution of a liquid in liquid is celled is gel

D. Hardy-Schulze rule is related with coagulation

Answer: C

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16. which of the following does not contain a hydrophobic structures.

A. Linseed oil

B. Lanolin

C. Glycogen

D. Rubber

Answer: D

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17. The function of gum arabic in the preparation of Indian ink is

A. Coagulation

B. peptization

C. Protective action

D. absorption

Answer: C

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18. Which of the following gases is adsorbed most by activated charcoal?

A. N_2

B. SO_2

C. H_2

D. O_2

Answer: B

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19. Spherical gold paricles of radius $10nm$, then the number of gold particles per mm^3 of sol will be

A. 1.9×10^{12}

B. 6.3×10^{14}

C. 6.3×10^{10}

D. 2.4×10^{6}

Answer: D

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20. Which of the following forms cationic micelles above certain concentration?

A. Urea

B. cetyltrimethylammonium bromide

C. sodium dodecyl sulphate

D. sodium acetate

Answer: D

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21. In Frenudlich adsorption isotherm si proportional to pressure P as

A. P^0

B. P

C. P^n

D. $P^{1/n}$

Answer: D

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22. Noble gases are adsorbed by

A. Anhydrous calcium chloride

B. Farric hydroxide

C. Cons, H_2SO_4

D. Activated cocount charcoal

Answer: D

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23. Adam's catalyst is

A. Platinum

B. Iron

C. Molybdenum

D. All of these

Answer: A

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24. Which of the following types of metal form the most efficient catalysts?

A. Alkali metals

B. Alkaline earth metals

C. Transition metals

D. All of these

Answer: C

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25. As_2S_3 has a negative charge. Capacity to precipate it is highest in

A. $AlCl_3$

B. Na_3PO_4

C. $CaCl_2$

D. K_2SO_4

Answer: A

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26. Which of the following ielectrolytes is least effective in causing flocculation of ferric hydroxide sol?

A. $K_4\left[Fe(CN)_6\right]$

B. K_2CrO_4

C. KBr

D. K_2SO_4

Answer: C

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27. Ferric hydroxide sol is positively charged colloid. The coagulating power of NO_3^- and PO_4^{3-} ions would be in the order

A. $NO_3^- > SO_4^{2-} > PO_4^{3-}$

B. $SO_4^{2-} > NO_3^- > PO_4^{3-}$

C. $PO_4^{3-} > SO_4^{2-} > NO_3^-$

D. $NO_3^- = SO_4^{2-} = PO_4^{3-}$

Answer: C

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28. Assertion: According to Freundlich: $\frac{x}{m} k. P^{1/n}$

Reason: The isotherm shows variation of the amount of gas adsorbed with temperature.

A. If both assertion and reason are true and the reason is the correct explanation of the assertion.

B. If both assertion and reason are true and the reason is not the correct explanation of the assertion.

C. If assertion is true but reason is false.

D. If assertion is false but reason is true.

Answer: C

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29. Assertion: For the coagulation of sols carrying positive charge, PO_4^{3-} ions are more effeciency than SO_4^{2-} or Cl^- ions.

Reason: This follows Hardy-Schulze rule.

A. If both assertion and reason are true and the reason is the correct explanation of the assertion.

B. If both assertion and reason are true and the reason is not the correct explanation of the assertion.

C. If assertion is true but reason is false.

D. If assertion is false but reason is true.

Answer: A

30. Assertion: Physical absorption of molecular takes place on surface only.

Reason: In this process, the bonds of the absorbed molecules are not broken.

A. If both assertion and reason are true and the reason is the correct explanation of the assertion.

B. If both assertion and reason are true and the reason is not the correct explanation of the assertion.

C. If assertion is true but reason is false.

D. If assertion is false but reason is true.

Answer: D