



CHEMISTRY

BOOKS - MARVEL CHEMISTRY (HINGLISH)

SURFACE CHEMISTRY

Multiple Choice Questions Standard Level 1
Adsorption

1. The adhering of the molecules of a gas on the surface of a solid is called _____ .

A. Adsorption

B. Absorption

C. Adsorbate

D. desorption

Answer: A



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2. Adsorption is the phenomenon in which a substance :

- A. goes into the body of the other substance
- B. remains close to the other substance
- C. accumulates on the surface of the other substance
- D. penetrates into other substance

Answer: C



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3. In the adsorption of oxalic acid on activated charcoal, the activated charcoal is called

A. adsorbent

B. absorbate

C. adsorber

D. absorbent

Answer: A



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4. Physical adsorption is appreciable at :-

A. at room temperature

B. at higher temperature

C. at lower temperature

D. at any range of temperature

Answer: C



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5. In the case of adsorption the concentration of adsorbate is

A. more on the surface as compared to both

B. less on the surface as compared to both

C. different on the surface as compared to

both

D. same through out the solid

Answer: A



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6. Compare the heat of adsorption for physical and chemical adsorption?

A. may be negative or positive

B. negative

C. positive

D. zero

Answer: B



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7. When H_2 passes over palladium the process that takes place is

A. Absorption

B. Adsorption

C. Surface tension

D. Peptization

Answer: B



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8. The extent of adsorption of a gas on a solid depends on :

A. Size of gas molecules

B. Bonding of gas molecules

C. Temperature of gas only

D. Nature, Pressure and concentration of the
gas

Answer: D



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9. If the adsorbate is held on the surface of an adsorbent by force of van der Waals type, the

adsorption is called

- A. Deposition
- B. Physisorption
- C. Chemisorption
- D. Absorption

Answer: B



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10. Which of the following statement is not correct regarding physical adsorption ?

A. It is not specific

B. It forms multimolecular layers

C. It is recersible

D. It has high heat of adsorption

Answer: D



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11. The amount of heat evolved when one mole of the gas is adsorbed on the surface of an adsorbent, is called -

A. Heat of absorption

B. Heat of summation

C. Heat of adsorption

D. Heat of reaction

Answer: C



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12. Which of the following is adsorbed to maximum amount by an activated charcoal?

A. N_2

B. O_2

C. Cl_2

D. CO_2

Answer: C



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13. If 'x' is mass of absorbate, 'm' is mass of solid absorbent, 'p' is pressure and 'k' is the constant,

then which of the following represents

Freundlich adsorption isotherm?

A. $\frac{x}{m} = Kp^n$

B. $\frac{x}{m} = Kp^{1/n}$

C. $\frac{dx}{dm} = Kp^{1/n}$

D. $\ln = Kp \frac{x}{m}$

Answer: B



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14. For the adsorption of a gas on a solid, the plot of $\log (x/m)$ against $\log P$ will have a intercept of

A. h

B. $\log K$

C. n

D. $1/n$

Answer: B



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15. Which of the following is less than zero during adsorption?

A. ΔH

B. ΔS

C. ΔU

D. ΔH and $P\Delta V$

Answer: A



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16. Chemical adsorption

A. is reversible

B. takes place at low temperature

C. is endothermic

D. is exothermic

Answer: D



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17. Which of the following is not case of adsorption?

A. gas on solid

B. liquid on solid

C. gas on liquid

D. gas on gas

Answer: D



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18. Which of the following types of impurities can be removed by adsorption ?

A. soluble

B. insoluble

C. soluble as well as insoluble

D. non liquifiable gases

Answer: A



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19. For adsorption of a gas on a solid, the plot of $\log (x / m)$ vs $\log P$ is linear with a slope equal to $[n \text{ being a whole number}]$:

A. K

B. $\log K$

C. $1/n$

D. $\log n$

Answer: C



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20. The equation which describes the quantitative relationship between the pressure and the amount of gas adsorbed at constant temperature is known as

A. Freundlich's equation

B. Gibbs equation

C. Helmholtz equation

D. Kirchhoff's equation

Answer: A



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

- A. High temperature, High pressure
- B. High temperature, Low pressure
- C. Low temperature, Moderate pressure
- D. Low temperature, Low pressure

Answer: C



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

A. SO_2

B. H_2S

C. H_2

D. He

Answer: A



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23. Identify the gas which is readily adsorbed by activated charcoal?

A. Cl_2

B. N_2

C. H_2

D. He

Answer: A



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24. Which of the following substances adsorbs H_2 gas most strongly ?

A. Silica gel

B. Fe powder

C. Platinum black

D. Activated charcoal

Answer: C



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25. The gases which liquefy more easily get more adsorbed than the other gases because former have greater

- A. Van der Waal's forces
- B. Intermolecular forces
- C. Cohesive forces
- D. All of the above

Answer: D



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26. A curve showing the variation of extent of adsorption with temperature at constant pressure is called.....

- A. adsorption isotherm
- B. adsorption isobar
- C. absorption isotherm
- D. adsorption isobar

Answer: B



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27. Which of the following acts as best adsorbent ?

A. charcoal

B. activated charcoal

C. carbon black

D. activated coconut charcoal

Answer: D



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28. If W is the amount of adsorbate adsorbed by unit mass of an adsorbent whose mass is x g and the initial pressure and equilibrium pressure of the adsorbate are p_1 and P_2 respectively, Freundlich's adsorption isotherm can be written as

A. $w/s = KP_1^{1/n}$

B. $w/x = KP_2^{1/n}$

C. $W = PK_1^{1/n}$

D. $W = KP_2^{1/n}$

Answer: D



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29. In the Freundlich's adsorption isotherm the constants K and n depends on

A. only temperature

B. only nature of adsorbate

C. only nature of adsorbent

D. temperature and ratio of mass of adsorbate to adsorbent

Answer: D



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30. Which of the following is not applicable to chemisorption?

A. It is favoured by high temperature.

B. Effect of pressure is given by Freundlich's adsorption.

C. It involves formation of monomolecular layer of adsorbate.

D. There is formation of chemical bonds between adsorbent and adsorbate.

Answer: B



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31. Following are characteristic of absorption, which one is correct?

A. It is a surface phenomenon

B. It is independent of temperature and pressure

C. It is neither exothermic nor endothermic

D. It is independent of surface area

Answer: D



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32. Freundlich adsorption isotherm is applicable at:

- A. low pressure
- B. high pressure
- C. moderate pressure
- D. high temperature

Answer: C



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33. The extent of chemisorption-

- A. decreases with increase in temperature

B. increases with increase in temperature

C. is independent of temperature

D. first increases and then decreases with
increase in temperature

Answer: D



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34. Heat evolved during chemisorption lies in
the range of

A. zero to 20,000 J mol^{-1}

B. 20,000 to 40,000 J mol^{-1}

C. 40,000 to 400,000 J mol^{-1}

D. Very high

Answer: C



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35. Adsorber acetic acid on activated charcoal is

A. Adsorber

B. Absorber

C. Adsorbent

D. Adsorbate

Answer: D



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36. the heat evolved in physisorption lies in the range (in kJ/mol) of :

A. 40 – 400

B. $40 - 100$

C. $10 - 40$

D. $1 - 10$

Answer: C



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37. In physical adsorption, gas molecules are bound on the solid surface by

A. Chemical forces

B. Electrostatic forces

C. Gravitational forces

D. Van der waal's forces

Answer: D



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38. How many layers are adsorbed in chemical adsorption?

A. One

B. Two

C. Many

D. Zero

Answer: A



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39. In physical adsorption, the forces associated are :

A. Ionic

B. Covalent

C. Van der waal

D. H-bonding

Answer: C



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40. Adsorption due to strong chemical force is called

A. Chemisorption

B. Physisorption

C. Reversible adsorption

D. Adsorption due to van der Waal's forces

Answer: A



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

A. It is 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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42. Which is adsorbed in maximum amount by activated charcoal?

A. N_2

B. CO_2

C. Cl_2

D. O_2

Answer: C



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43. which among the following statement is false ?

A. Increase of pressure increases the amount of adsorption

B. Increases of temperature may decrease the amount of adsorption

C. The adsorption may be monolayered or multilayered

D. Particle size of the adsorbent will not affect the amount of adsorption

Answer: D



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44. Rate of physisorption increases with :

A. decrease in temperature

B. increase in temperature

C. decrease in pressure

D. decrease in surface area

Answer: A



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45. Which of the following characteristics is not correct for physical adsorption ?

A. Adsorption on solids is reversible

B. Adsorption increases with increases in temperature

C. Adsorption is spontaneous

D. Both enthalpy and entropy of adsorption are negative

Answer: B



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46. Adsorption is

- A. Exothermic
- B. Endothermic
- C. Irreversible
- D. Bulk phenomenon

Answer: A



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47. As the temperature of the solid surface increases, the extent of adsorption of a gas

A. increases

B. decreases

C. remains unchanged

D. first increases then decreases

Answer: B



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48. The critical temperature of Cl_2 , NH_3 , SO_2 and N_2 are respectively 417 K, 406 K, 430 K and 126 K. The gas adsorbed in highest amount will be

A. N_2

B. NH_3

C. SO_2

D. Cl_2

Answer: C



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Multiple Choice Questions Standard Level 2

Catalysis

1. Which of the following catalyst is used during the hydrogenation of oil?

A. Iron

B. Nickel

C. Platinum

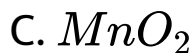
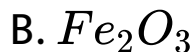
D. Molybdenum

Answer: B



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2. The catalyst used in the manufacture of nitric acid by ammonia is

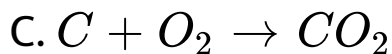
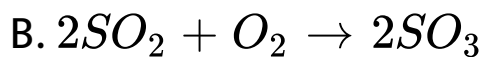
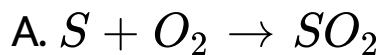


Answer: D



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3. Which requires catalyst ?



D. All of these

Answer: B



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

A. hardening of oils

B. synthesis of methanol

C. manufacture of synthetic rubber

D. manufacture of H_2SO_4

Answer: D



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5. In the contact process for manufacture of H_2SO_4 one of the adsorbate and adsorbent are respectively :

A. SO_2 platinised asbestos

B. platinised asbestos, SO_2

C. O_2 , platinum gauge

D. platinum gauge, SO_2

Answer: A



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6. In the hydrogenation of oils to get vegetable ghee the adsorbent and the adsorbate respectively-

A. oil and H_2 , Ni

B. Pt, oil

C. Ni, oil and H_2

D. oil, Pt

Answer: C



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7. Metals like platinum and palladium can adsorb large volumes of hydrogen under special conditions. Such adsorbed hydrogen by the metal is known as

- A. Adsorbed hydrogen
- B. Reactive hydrogen
- C. Occluded hydrogen
- D. Atomic hydrogen

Answer: C



8. Which is a characteristic of a catalyst ?

A. It changes the equilibrium point

B. It initiates the reaction

C. It alters the rate of reaction

D. It increases the average kinetic energy of
the molecule

Answer: C



9. the process which is catalysed by one of the product is called

A. Acid-base catalysis

B. Auto catalysis

C. Negative catalysis

D. Positive catalysis

Answer: B



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10. Which one of the following is an example of homogeneous catalysis ?

A. Haber's process of synthesis of ammonia

B. Catalytic conversion of SO_2 to SO_3 in contact process

C. Catalytic hydrogenation of oils

D. Acid hydrolysis of methyl acetate

Answer: D



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11. A catalyst increases rate of reaction by

A. decreasing enthalpy

B. decreasing internal energy

C. decreasing activation energy

D. increasing activation energy

Answer: C



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

A. Increases 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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13. Which of the following kinds of catalysis can be explained by the adsorption theory?

- A. Homogeneous catalysis
- B. Acid - base catalysis
- C. Heterogeneous catalysis
- D. Enzyme catalysis

Answer: C



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14. A biological catalyst is

- A. An enzyme
- B. A carbohydrate
- C. An amino acid
- D. A nitrogenous base

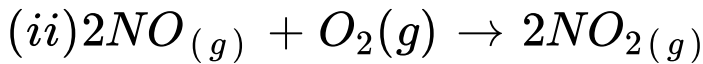
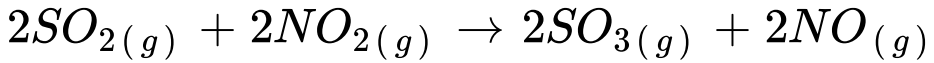
Answer: A



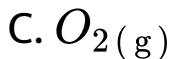
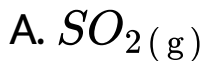
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15. A certain reaction occurs in two steps as

(i)



In the reaction, _____.



Answer: B



16. In the decomposition of H_2O_2 , The concentration of colloidal platinum used is of order

A. $10^{-8} \text{ mol dm}^{-3}$

B. $10^{-1} \text{ mol dm}^{-3}$

C. $10^{-2} \text{ mol dm}^{-3}$

D. $10^{-3} \text{ mol dm}^{-3}$

Answer: A



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17. Due to use of catalyst in reaction

- A. activation energy is increased
- B. activation energy is decreased
- C. activation energy remain unchanged
- D. heat of reaction changes

Answer: B



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18. Poisoning of catalyst means

- A. catalyst becomes highly reactive
- B. catalyst becomes inactive
- C. intermediate is formed quickly
- D. intermediate is formed very slowly

Answer: B



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19. In the chloroform solution, 2% ethanol is added, which acts as

A. Catalyst

B. Promoter

C. Inhibitor

D. Enzyme

Answer: C



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20. Which of the following is not true for homogeneous catalysis ?

A. Catalyst and reactants are in single phase

B. Catalyst involves in chemical reaction

C. These reactions are often little faster

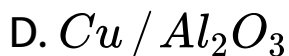
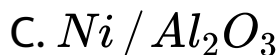
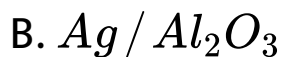
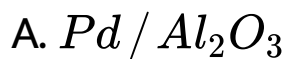
D. Rate of the reaction is proportional to the surface area of catalyst

Answer: D



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21. Select the catalyst which can help in conversion of ethene into acetaldehyde?

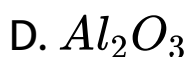
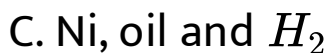
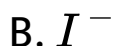


Answer: A



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22. Which of the following homogeneous catalyst used in the conversion of ethyl acetate into ethanol ?



Answer: A



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23. What are enzymes ?

A. Carbohydrates

B. Oils

C. Proteins

D. Fats

Answer: C



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24. Which one of the following is degraded by enzyme amylase?

A. Oligosaccharide

B. Cellulose

C. Monosaccharide

D. Starch

Answer: D



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25. To trap glucose in the cell, glucokinase is the enzyme, used by which part of human body ?

A. Heart

B. Liver

C. Brain

D. Pancreas

Answer: B



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26. Which pair of the catalyst is used to convert ethanol into ethene and ethanal respectively ?

A. Al_2O_3 , Cu

B. Cu , Al_2O_3

C. Cu , ZnO

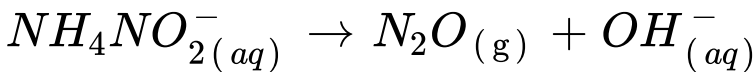
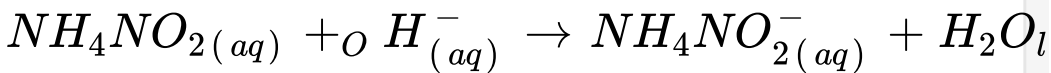
D. ZnO , Cu

Answer: A

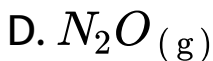
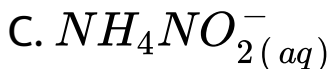
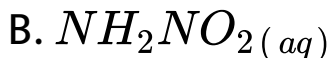


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27. Given the sequence of reactions,



The catalyst for the overall reaction is

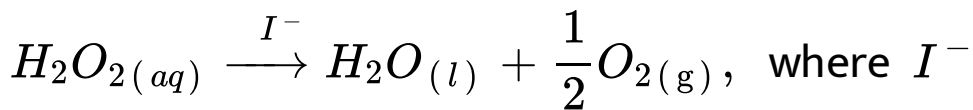


Answer: A



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28. In the reaction



is

A. Heterogeneous catalyst

B. Homogeneous catalyst

C. Enzyme catalyst

D. Acid catalyst

Answer: B



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29. The bond formed by a gaseous reactant with the surface of solid catalyst is

- A. Ionic
- B. Co-ordinate
- C. Covalent
- D. Metallic

Answer: C



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30. The rate of reaction depends on the surface area of catalyst in

- A. Homogeneous catalyst
- B. Enzyme catalysis
- C. Acid catalysis
- D. Heterogeneous catalysis

Answer: A



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31. Enzymes are

- A. Homogeneous catalysts
- B. Heterogeneous catalysts
- C. Acid catalysts
- D. Base catalysts

Answer: A



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32. For the conversion of O_2 to O_3 in the atmosphere, nitric oxide is

- A. Enzyme catalyst
- B. Heterogeneous catalyst
- C. Homogeneous catalyst
- D. Base catalyst

Answer: C



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Multiple Choice Questions Standard Level 3

Colloids

1. Water loving colloids are known as

A. hydrophilic

B. hydrophobic

C. lyophilic

D. lyophobic

Answer: A



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2. Alcosol is colloidal system -

A. liquid dispersed in a solid

B. liquid dispersed in a solid

C. solid dispersed in a liquid

D. solid dispersed in a solid

Answer: A



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3. Which of the following electrolyte is most effective in causing the coagulation of a positively charged ferric hydroxide solution?

A. KCl

B. KNO_3

C. K_2SO_4

D. K_3PO_4

Answer: D



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4. When a beam of light is passed through colloidal solution.

A. is reflected

B. is scattered

C. passed through undeviated

D. is completely absorbed

Answer: B



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

A. aerosol

B. emulsion

C. foam

D. gel

Answer: A



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6. An emulsion is a colloidal solution consisting of :

- A. one liquid and one gas
- B. one solid and one liquid
- C. two liquids
- D. two solids

Answer: C



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7. The movement of colloidal particle is

A. circular

B. linear

C. rotational

D. zig-zag

Answer: D



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8. While washing with soap

A. emulsification of grease and dirt takes place

B. grease and dirt dissolve in water

C. Grease and dirt form a colourless substance

D. Grease and dirt form an insoluble residue

Answer: A



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9. Colloidal solution is-

- A. heterogeneous two phase system
- B. homogeneous one phase system
- C. heterogeneous three phase system
- D. homogenous two phase system

Answer: A



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10. Milk of magnesia is an example of

A. sol

B. gel

C. foam

D. aerosol

Answer: A



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11. Smoke is an example of :

A. solid dispersed in liquid

B. liquid dispersed in solid

C. water drops in camphor

D. solid in gas

Answer: D



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12. Fog is a colloidal system of :-

A. gas in gas

B. liquid in gas

C. water drops in camphor

D. solid in gas

Answer: B



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13. An emulsifier is a substance which :

A. stabilises emulsion

B. coagulates emulsion

C. acts as protective colloid

D. set emulsion to gel

Answer: A



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14. The colour of different gold differ due to

A. its variable valency

B. its different concentration

C. impurities

D. difference in the size of the colloidal particles

Answer: D



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15. Which of the following does not show Brownian movement always?

A. Colloidal solutions

B. Suspension

C. Both colloidal solution and suspension

D. Coarse suspension

Answer: D



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16. The colour of colloidal solutions depends on

A. Size of the dispersed phase particles

B. Shape of the dispersed phase particles

C. Wavelength of light following on it

D. Size of the particles of dispersion medium

Answer: A



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17. Butter is an example of :-

A. water in oil

B. Dil. In water

C. suspension

D. aerosol

Answer: A



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

- A. its size
- B. magnitude of its charge
- C. sign of its charge alone
- D. both magnitude and sign of its charge

Answer: D



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19. Soap and synthetic detergents

- A. lower the surface tension of water
- B. increases the surface tension of water
- C. dissolve the greases
- D. sets as absorbent

Answer: A



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20. Alum is added to muddy water because

- A. Al^{+3} ions coagulate negatively charged clay particles
- B. Al^{+3} is a disinfectant
- C. It makes water acidic
- D. Clay is soluble in alum

Answer: A



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21. Which of the following word is not connected with colloids?

A. Brownian motion

B. Dialysis

C. Ultramicroscope

D. Wavelength

Answer: D



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22. The stabilisation of a lyophobic colloid is due to :

A. charge on their particles

B. a layer of medium of dispersion on their particles

C. the smaller size of their particles

D. the large size of their particles

Answer: A



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

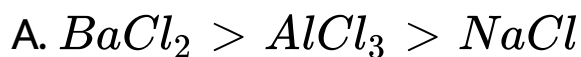
- A. Starch solution
- B. Arsenic sulphide solution
- C. Barium sulphate solution
- D. Silver iodide solution

Answer: A



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



Answer: D



25. Which statement is wrong about water in oil type emulsion?

- A. This type of emulsion easily spreads on the surface of an oil.
- B. This type of emulsion can be easily diluted with oil but not water.
- C. An oil soluble dye forms coloured droplets against a colourless background.

D. This type of emulsion can not be easily concentrated.

Answer: C



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26. Soaps essentially form a colloidal solution in water and remove the greasy matters by :

A. Adsorption

B. Peptization

C. Coagulation

D. Emulsification

Answer: D



Watch Video Solution

27. Tyndall effect in colloidal solution is due to

A. Polarization of light

B. Scattering of light

C. Reflection of light

D. Refraction of light

Answer: B



Watch Video Solution

28. The number of phases in colloidal system are

A. 1

B. 2

C. 3

D. 4

Answer: B



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29. Alum purifies muddy water by

- A. Dialysis
- B. Absorption
- C. Coagulation
- D. Giving true solution

Answer: C



30. Mark the correct statement

A. Colloidal state is obtained for very few substances.

B. All the substances by employing suitable methods can be obtained in colloidal state.

C. Colloidal state can be obtained by subjecting the substances to a high

temperature.

D. Size range of the colloidal particle is

$$< 10^{-9} \text{ m.}$$

Answer: B



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31. Colloidal particles in a solvent form

A. Gas phase

B. Dispersed phase

C. Dispersion medium

D. Liquid phase

Answer: B



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32. Hardy-schulze rule states that :-

A. Charge of the cations or anions has no effect on the coagulation of a colloidal solution.

B. Non-electrolytes have better coagulation action on colloids than electrolytes.

C. Sols are coagulated only by those ions whose charge is similar to that of the solution.

D. Sols are coagulated by ions whose charge is opposite to that of their own and the ions of higher charge are much more effective than the ions of lower charge.

Answer: D



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33. Which of the following is an emulsifier ?

A. Soap

B. Oil

C. Water

D. NaCl

Answer: A



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34. Colloidal particles passes the remarkable property of adsorption which is due to

A. Larger surface area of such particles

B. Their tendency to hold the other substances very strongly

C. Large attractive

D. Absorptive power

Answer: A



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35. Which of the following statement is correct:

A. Colloidal particles scatter light and the property is known as Brownian movement

B. Colloidal particles move towards oppositely charged electrodes under the influence of electric field and it is known as cataphoresis.

C. Colloidal particle move in a zig-zag and this phenomenon is known as Tyndall effect.

D. The movement of dispersion medium under the influence of electric field is known as electrophoresis.

Answer: B



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36. Sky looks blue due to

A. Transmission

B. Scattering

C. Dispersion effect

D. Reflection

Answer: B



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37. In lyophobic solutions

A. There is a strong interaction between the disperse phase and the dispersion medium.

B. The solid particles are electrically neutral

C. The dispersion medium and the disperse phase are always solids.

D. Once the solid particles are coagulated and precipitated, they cannot be reconverted into solutions.

Answer: D



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38. Tyndall effect is shown by :

- A. Colloidal solution
- B. Osmotic solution
- C. Isotonic solution
- D. Hypertonic solution

Answer: A



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39. The size of particles in suspension , true solution and colloidal solution varies in the order :

A. suspension > solution > colloid

B. suspension > colloid > solution

C. solution > colloid > suspension

D. colloid > solution > suspension

Answer: B



Watch Video Solution

40. Cheese is a colloidal system of -

- A. Gas in liquid
- B. Gas in solid
- C. Liquid in solid
- D. solid in gas

Answer: C



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41. An oil-in-water emulsion can be converted into water-in-oil emulsion by adding excess of

A. Water in it

B. Oil in it

C. Starch in it

D. All of these

Answer: B



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42. A colloidal solution of $Fe(OH)_3$ in water is

:-

- A. an emulsion
- B. a hydrophilic colloid
- C. a hydrophobic colloid
- D. a gel

Answer: C



Watch Video Solution

43. which of the following is not applicable for electrophoresis ?

A. coagulation of sol.

B. to distinguish sol. and true solution

C. to test purity of gases

D. to detect charge on colloidal particle

Answer: C



Watch Video Solution

44. The dispersed phases and dispersion medium in fog are reversed in case of

A. aerosol

B. foam

C. emulsion

D. Sol

Answer: B



Watch Video Solution

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

A. electrophoresis

B. addition of a dehydrating agent

C. precipitation

D. filtration

Answer: C



Watch Video Solution

46. Which of the following is an example of solid, solid colloidal system?

A. Smoke

B. Cake

C. Synthetic gems

D. Pumice stones

Answer: C



Watch Video Solution

47. The lyophobic sol. Particle is stabilized by

A. charge and film of dispersion medium

B. only charge

C. only thin film of dispersion medium

D. charge and its large size

Answer: B



Watch Video Solution

48. Which is used in ending charge on colloidal solution?

A. electron

B. positive charge ions

C. Electrolytes

D. Compounds

Answer: C



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49. A colloidal solution of $Fe(OH)_3$ in water is

:-

- A. a hydrophilic colloid
- B. a hydrophobic colloid
- C. an emulsion
- D. none of above

Answer: B



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50. In milk, casein acts as

A. emulsifier

B. adsorbents

C. gel

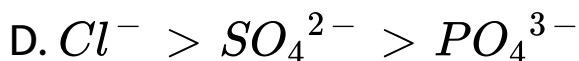
D. miscelle

Answer: A



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51. The coagulating power of ions, for a negative sol changes in the order



Answer: C



Watch Video Solution

52. which of the following is a lyophobic colloid ?

A. sulphur

B. gelatin

C. starch

D. urea

Answer: A



Watch Video Solution

53. Which of the following forms a colloidal solution in water?

A. NaCl

B. Glucose

C. Starch

D. Barium nitrate

Answer: C



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54. When dispersion medium is water, the colloidal sol is called:

A. Sol.

B. Aerosol

C. Organosol

D. Aquasol

Answer: D



Watch Video Solution

55. Which is not colloidal?

A. Chlorophyll

B. Ruby glass

C. Milk

D. Egg

Answer: A



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56. Which of the following is not exhibited by

A. milk

B. blood

C. solution of urea

D. ice cream

Answer: C



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57. Which one of the following is not exhibited by colloidal particle ?

A. Adsorption

B. Tyndall effect

C. Brownian movement

D. Thixotropy

Answer: D



Watch Video Solution

58. The digestion of fats in the intestines is aided by

A. hydrolysis

B. Oxidation

C. de-emulsification

D. Emulsification

Answer: D



Watch Video Solution

59. The origin of charge on sol particles is due to
to

A. ionization of sols

B. cataphoresis

C. coagulation of sols

D. Preferential adsorption of ions

Answer: D



Watch Video Solution

60. Adsorption explains all the following except

A. Origin of charge on colloids

B. Decolourisation of sugar solution by charcoal

C. Efficiency of finely divided metals as catalysts

D. Action of enzymes

Answer: D



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61. Which of the following makes the hydrophilic sol unstable?

A. Dialysis

B. addition of electrolytes

C. addition of alcohol

D. alcohol and electroly both

Answer: A



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

A. barium sulphate solution

B. Arsenic sulphide solution

C. starch solution

D. Silver iodide solution

Answer: C



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63. The colloidal particles can pass

A. through filter paper as well as animal memberane

B. through animal membrane, but not through filter paper

C. through filter paper but not through animal memberane

D. through semipermeable mamberane

Answer: C



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64. Starch dispersed in hot water is an example of

A. emulsion

B. hydrophobic sol

C. lyophilic sol

D. dissociated colloid

Answer: C



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65. Colloidal particles are visible

A. to naked eye

B. under ultramicroscope

C. neither to naked eye nor under a
microscope

D. to naked eyes in hot weather

Answer: B



Watch Video Solution

66. Optical property of a colloid is studied with the device

- A. ultracentrifuge
- B. burton,s tube
- C. Ultramicroscope
- D. none of the above

Answer: C



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67. Cake belongs to

A. gel

B. Solid foam

C. emulsion

D. sol

Answer: B



Watch Video Solution

68. The movement of dispersion medium under the influence of an electric field is called _____

.

A. Brownian movement

B. Cataphoresis

C. Electro-dialysis

D. Electro-osmosis

Answer: D



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69. Which of the following is not emulsifying agent?

A. soap

B. common salt

C. gelatin

D. gum

Answer: B



Watch Video Solution

70. Which of the following is an example of oil in water emulsion?

A. cod liver oil

B. cold cream

C. Milk

D. boot polish

Answer: C



Watch Video Solution

71. In which of the following colloids, the dispersed phase does not carry the negative charge?

A. Cu-sol

B. Au-sol.

C. Dye stuffs

D. $Fe(OH)_3$

Answer: D



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72. Soap in alcohol is

A. colloid

B. crystalloid

C. suspension

D. true solution

Answer: C



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73. The stability of an emulsion depends upon:

A. Viscosity of the dispersion medium.

B. Electrical charge and compactness of the protecting film.

C. Density difference between the two liquids.

D. All of the above

Answer: D



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74. A dispersion of $AgCl$ in water is

A. an alcohol

B. an emulsion

C. hydrophobic sol

D. hydrophilic colloid

Answer: C



Watch Video Solution

75. Emulsifying agents are generally

A. protective colloids

B. ions with positive charge

C. ions with negative charge

D. Lyophobic colloids

Answer: A



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76. Tyndall effect is not observed in

A. emulsions

B. sols.

C. true solutions

D. colloids

Answer: C



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77. The kinetic energy of colloidal particles in liquid is

A. Electro-osmosis

B. Electrophoresis

C. Brownian motion

D. Tyndall effect

Answer: C



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78. Which of the following has minimum coagulating

A. Na^+

B. Pb^{2+}



Answer: A



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79. The size of colloidal particle is between

A. $10^{-7} - 10^{-9}$ cm

B. $10^{-9} - 10^{-11}$ cm

C. $10^{-5} - 10^{-7}$ cm

D. $10^{-2} - 10^{-3}$ cm

Answer: C



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80. The size of a colloidal particle is :

A. $> 0.1\mu$

B. $1m\mu$ to 0.2μ

C. $< 1m\mu$

D. $> 10m\mu$

Answer: B



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81. Butter is a colloid formed when :

- A. Fat is dispersed in water
- B. Fat globules are dispersed in water
- C. Water is dispersed in fat
- D. Water is removed from fat

Answer: C



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82. Clouds represent an example of dispersion 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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83. Milk is a colloid in which

A. A liquid is dispersed in liquid

B. A solid is dispersed in liquid

C. A gas is dispersed in liquid

D. Some sugar is dispersed in water

Answer: A



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84. Cod liver oil is

A. Fat dispersed in water

B. Water dispersed in fat

C. Water dispersed in oil

D. Fat dispersed in fat

Answer: C



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85. Which of the following sols is hydrophobic ?

A. Gum

B. Gelatin

C. Starch

D. Sulphur

Answer: D



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86. Which of the following constitutes irreversible colloidal system in water as dispersion medium ?

A. Clay

B. Platinum

C. $Fe(OH)_3$

D. Sulphur

Answer: D



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87. 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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88. Which one of the following is not used for preparing lyophilic sols ?

A. Starch

B. Gum

C. Gelatin

D. Metal sulphide

Answer: D



Watch Video Solution

89. The cause of Brownian-movement is

A. Heat changes in liquid state

B. Convectional currents

C. The impact of molecules of the dispersion medium on the colloidal particles

D. Attractive forces between the colloidal particles and molecules of dispersion medium

Answer: C



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90. Brownian movement is found in

A. Colloida solution

B. Suspension

C. Saturated solution

D. Unsaturated solution

Answer: A



Watch Video Solution

91. The random motion of colloidal particles in the dispersion medium is known as

A. Dialysis

B. Brownian movement

C. Electroosmosis

D. Tyndall effect

Answer: B



Watch Video Solution

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

A. Suspensions

B. Emulsions

C. Sugar solution

D. Gold sol

Answer: C



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93. Tyndall effect is shown by :

A. Sol

B. Solution

C. Plasma

D. Precipitate

Answer: A



Watch Video Solution

94. In brownian motion , the paths of the particles are :

A. Linear

B. Zig-zag

C. Uncertain

D. Curved

Answer: B



Watch Video Solution

95. The migration of colloidal solute particles in a colloidal solution, when an electric current is applied to the solution is known as

A. Brownian movement

B. Electroosmosis

C. Electrophoresis

D. Electrodialysis

Answer: C



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96. When a beam of light is passed through colloidal solution,

A. be reflected

B. be scattered

C. be refracted

D. give a rainbow

Answer: B



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97. The simplest way to check whether a system is colloidal is by

A. Tyndall effect

B. Brownian movement

C. Electrodialysis

D. finding out particle size

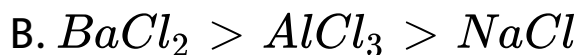
Answer: A



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98. A colloidal solution is subjected to an electrical field. The particles move towards the anode. The coagulation of the same sol is studied using

$NaCl$, $BaCl_2$ and $AlCl_3$ solutions. Their coagulating power should be



Answer: C



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99. 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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100. Which one of the following will have the highest coagulating power for a ferric hydroxide solution-

A. NaCl

B. $BaCl_2$

C. K_2CrO_4

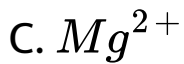
D. $K_3[Fe(CN)_6]$

Answer: D



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101. Which of the following ions can cause coagulation of proteins ?



Answer: A



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102. Arseneous sulphide is a negative sol. The reagent with least coagulation power in this sol is



D. Glucose

Answer: D



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103. the stability of lyophilic colloids is due to

- A. Charge on their particles
- B. Large size of their particles
- C. Small size of their particles
- D. A layer of dispersion medium

Answer: D



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104. Why the colloidal particles are charged ?

- A. Because colloidal particles are cations
- B. Because colloidal particles are anions
- C. Because preferential adsorption of cation or anion is on colloidal particles
- D. Because unbalanced chemical reactions charged are retained on colloidal particles

Answer: C



Watch Video Solution

105. Which of the following is macromolecular colloidal ?

A. Gold sol

B. Silver sol

C. Sulphur sol

D. Rubber sol

Answer: D



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106. The optical property of colloidal solution is based on the principle

- A. Reflection of light
- B. Interference of light
- C. Scattering of light
- D. Dispersion of light

Answer: C



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107. If the pressure of a gas is increased, its extent of adsorption will

A. decrease

B. increase in all pressures

C. increase at low pressure only

D. decrease at high pressures

Answer: C



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108. The size of colloidal particle is

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

B. 10^{-6} m to 10^{-4} m

C. 10^{-9} m to 10^{-6} m

D. 10^{-5} m to 10^{-2} m

Answer: C



Watch Video Solution

109. A sol is a dispersion of

A. solid in a liquid

B. liquid in a solid

C. liquid in a liquid

D. gas in a liquid

Answer: A



Watch Video Solution

110. Milk is

A. an emulsion

B. a gel

C. a sol

D. an aerosol

Answer: A



Watch Video Solution

111. Somke is a colloidal dispersion of

A. Gas in liquid

B. liquid in gas

C. Liquid in solid

D. solid in gas

Answer: D



Watch Video Solution

112. Fog is a colloidal solution of

A. gas in solid

B. solid in gas

C. liquid in gas

D. liquid in solid

Answer: C



Watch Video Solution

113. A handful of sand is stirred into water. The mixture will be

A. true solution

B. colloidal solution

C. suspension

D. homogeneous solution

Answer: C



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**Multiple Choice Questions Standard Level 4
Nanomaterials**

1. What are quantum dots?

A. Nanotubes

B. Semiconductors

C. Sols

D. Emulsions

Answer: B



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2. Which is the colour of the light that 3 nm cadmium selenide particles emits ?

A. Red

B. Violet

C. Green

D. Yellow

Answer: C



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Multiple Choice Questions Higher Level

1. The purification of the colloidal particles from crystalloid dimensions through semipermeable membrane is known as:

A. Filtration

B. Dialysis

C. Ultrafiltration

D. Electrophoresis

Answer: B



Watch Video Solution

2. Purification of colloids is done by-

A. dialysis

B. heating

C. precipitation

D. mashing

Answer: A



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3. Freundlich adsorption isotherm is

A. $\frac{x}{m} = K \cdot p^{1/n}$

B. $\frac{x}{m} = Kp^n$

$$C. \frac{x}{m} = Kp^{-n}$$

$$D. \frac{x}{m} = \frac{1}{K} \cdot p^{1/n}$$

Answer: B



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4. The process of passing of a precipitate into colloidal solution on adding an electrolyte is called

A. Peptization

B. Flocculation

C. precipitation

D. Hydration

Answer: A



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5. Colloids and crystalloids differ w.r.t.

A. physical state

B. size of the particle

C. protective agent

D. viscosity

Answer: B



View Text Solution

6. The minimum concentration of the electrolyte required to cause coagulation of a sol is called :

- A. Peptization value
- B. Gold number
- C. Avogadro's number

D. Precipitation Value

Answer: D



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7. Size of colloidal particle is

A. $> 0.1\mu$

B. $1m\mu - 0.1\mu$

C. $< 1m\mu$

D. more than $5000m\mu$

Answer: B



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8. Bleeding is stopped by the application of ferric chloride. This is because

A. Blood is coagulated and the blood vessel sealed

B. Blood reacts to form haemoglobin

C. Blood start flowing in the opposite direction

D. Ferric chloride seals the blood vessel

Answer: A



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9. The adsorption process is not used in

A. Gas masks

B. Dyeing of cloths

C. Dehumidizers

D. To determine Avagadro's number

Answer: D



Watch Video Solution

10. Which of the following is present in gas mask ?

A. Nickel

B. Cobalt

C. Platinum

D. Activated charcoal

Answer: D



Watch Video Solution

11. which of the following is used to adsorb water ?

A. Charcoal

B. Silica gel

C. Cobalt

D. Nickel

Answer: B



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12. Process by which a stable colloidal solution can be produced from substance originally present in massive form when the colloidal particles pre-exist in substance to be dispersed is known as

A. coagulation

B. dispersion

C. peptization

D. Precipitation

Answer: B



Watch Video Solution

13. Colloidal solution have lower osmotic pressure because-

A. particles are very smaller

B. particles are very big

C. number of particles per unit volume are
less

D. particles can pass through semipermeable
membrane

Answer: C



Watch Video Solution

14. The pH at which the charge on protein colloid is reversed is called

A. coagulation point

B. flocculation point

C. neutral pH point

D. isoelectric point

Answer: D



Watch Video Solution

15. Adsorption plays an important role in

A. Heterogeneous catalysis

B. Homogenous catalysis

C. Positive catalysis

D. Negative catalysis

Answer: A



Watch Video Solution

16. Which of the following substances can be used for refining of petroleum and vegetable oils.

A. Sodium aluminium silicate

B. Zeolites

C. Fuller's earth and silica gel

D. Activated charcoal

Answer: C



Watch Video Solution

17. Decomposition of NH_3 on the surface of tungsten is a reaction of :

A. Zero order

B. First order

C. Second order

D. Third order

Answer: A



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18. The equilibrium attained in case of physical adsorption is

A. static

B. dynamic

C. slow

D. at the end of the process

Answer: B



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19. Increase in concentration of adsorbate at the surface of a substance as compared to bulk is called

A. negative adsorption

B. positive adsorption

C. adsorption

D. sorption

Answer: B



Watch Video Solution

20. The impurities present in rain water possesscharge.

A. Positive

B. negative

C. zero

D. positive and negative

Answer: B



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21. Latex is a colloidal solution of rubber particles which are

A. No charge

B. positive charge only

C. Negative charge only

D. May be positive or negative charge

Answer: B



Watch Video Solution

22. Colloidal sol found effective in treating eye disease is

A. colloidal sulphur

B. colloidal antimony

C. colloidal gold

D. colloidal silver

Answer: D



Watch Video Solution

23. 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: A



Watch Video Solution

24. The example of heteropolar sol. is

A. starch sol in water

B. Rubber sol in water

C. protein sol in water

D. sulphur sol

Answer: C



Watch Video Solution

25. Tails of comets are visible due to

A. Tyndall effect

B. Reflection

C. Brownian motion

D. Interference of light

Answer: A



Watch Video Solution

26. Charcoal adsorbs not only gases but also acts as

- A. Reducing agent
- B. Oxidising agent
- C. Dehydrating agent

D. Hydrating agent

Answer: A



Watch Video Solution

27. Which of the following is not correct?

A. Every solid substance can be brought in colloidal state.

B. Every solid can be made to behave like a lyophobic colloid.

C. Addition of every electrolytes coagulate the sol.

D. Colloidal particles carry charges.

Answer: C



View Text Solution

28. A colloidal solution is affected greatly by all of the following except:

A. Heat

B. Gravitational forces

C. Electrical field

D. Adding on electrolyte

Answer: B



Watch Video Solution

29. Blood contains .

A. Positively charged particles

B. Negatively charged particles

C. neutral particles

D. Positively and negatively charged particles

Answer: B



Watch Video Solution

30. Surface tension of hydrophilic sols is

A. lower than water

B. more than water

C. equal to water

D. independent of water

Answer: A



Watch Video Solution

31. Which of the following is not an example of lyophobic solution ?

A. gold sol.

B. Sb_2S_3

C. $AgBr$

D. gum

Answer: D



Watch Video Solution

32. Medicines in colloidal form are more effective because

A. They are more soluble in water

B. They are easily absorbed and assimilated

C. They kill the germs

D. They interact easily

Answer: B



Watch Video Solution

33. H_2 is adsorbed by different metals. The order of increasing extent adsorption is

A. $Pd > Fe > Pt > Ni$

B. $Ni > Fe > Pt > Nd$

C. $Fe > Ni > Pt > Pd$

D. $Pd > Pt > Ni > Fe$

Answer: D



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34. The method used to prepare rubber cloth is

A. neutral coagulation

B. heating

C. Electrophoresis

D. addition of an electrolyte

Answer: C



View Text Solution

35. Which of the following is not an application of adsorption phenomenon?

A. Purification of muddy water

B. use of Ni in hydrogenation of oil

C. separation of mixture of amino acids by chromatography

D. Cottrell precipitation

Answer: D



View Text Solution

36. Electropositive colloid is

A. Tannic acid

B. silicic acid

C. gold

D. methylene blue

Answer: D



[View Text Solution](#)

37. Substances whose solutions can readily pass through animal membrane are called :

- A. crystalloid
- B. colloid
- C. Electrolytes
- D. non-electrolyte

Answer: A



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38. Some substances may occur both as sols as well as gels. This depends upon

A. The relative concentration of the dispersed phase and the dispersion medium

B. Osmotic pressure of the dispersed phase

C. Temperature of the dispersed phase

D. Method of preparation

Answer: A



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39. Emulsions of polyvinyl acetate are used in

A. Crayons

B. lates paints

C. polishes

D. fire works

Answer: B



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40. Cloud bursts due to :

A. large amount of water is present in the cloud.

B. clouds are attracted towards the electrical charge on the earth

C. mutual discharge of oppositely charged clouds result in the coagulation of water.

D. The cloud containing large amount of water burst due to high atmosphere pressure.

Answer: C



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41. Tanning of leather is

A. colouring of leather by chemicals

B. coagulating and hardening of leather by
chemicals

C. Polishing of leather to make it look
attractive

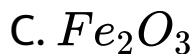
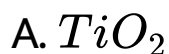
D. processing to make leather hard

Answer: B



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42. Smoke screens in war are obtained by dispersing in air colloidal particles of:



D. ThO_2

Answer: A



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43. Colloidal gold and calcium are used in

A. body lotions

B. tonics

C. germ killers

D. emulsion

Answer: B



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44. 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 positively charged sol.

C. Cl^- coagulates blood, which is a positively charged sol.

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

Answer: A



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45. Which of the following is solid foam ?

A. butter

B. shoe polish

C. curd

D. biscuit

Answer: D



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46. When dilute ink is treated with powdered charcoal-

A. blue colour becomes faint

B. blue colour becomes dense

C. no effect on blue colour

D. blue colour turns red

Answer: A



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47. Peptization denotes :

A. Digestion of food

B. Hydrolysis of proteins

C. Breaking and dispersion into the colloidal state

D. Precipitation of solid from colloidal dispersion

Answer: C



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48. Colloidal gold can be prepared by ,

A. Mechanical dispersion

B. Peptization

C. Bredig's Arc method

D. Hydrolysis

Answer: C



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49. When H_2S gas is passed through nitric acid, the product is :

A. Rhombic S

B. Prismatic S

C. Amorphous S

D. Monoclinic S

Answer: C



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50. Colloid of which one of the following can be prepared by electrical dispersion method as well as reduction method ?

A. Sulphur

B. Ferric hydroxide

C. Arsenious sulphide

D. Gold

Answer: D



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51. The formation of a colloidal from suspension is

A. Peptization

B. Condensation

C. Sedimentation

D. Fragmentation

Answer: A



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52. Blood is purified by :

A. Dialysis

B. Electroosmosis

C. Coagulation

D. Filtration

Answer: A



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53. 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: B



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

A. Coagulation

B. Peptization

C. Absorption

D. Protective action

Answer: D



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55. Which one of the following is correctly matched?

A. Emulsion-Curd

B. Foam - Mist

C. Aerosol - Smoke

D. Solid sol - Cake

Answer: C



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56. 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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57. In the case of auto catalysis

A. reactant catalyses

B. heat produced in the reaction catalyses

C. product catalyses

D. solvent catalyses

Answer: C



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58. Which of the following statement about the catalyst is/are true?

A. A catalyst accalerates the reaction by bringing down the free energy of

activation

B. A catalyst does not take part in the reaction mechanism

C. A catalyst makes the reaction more feasible by making the ΔG° more negative

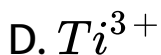
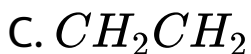
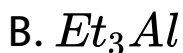
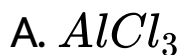
D. A catalyst makes the equilibrium constant of the reaction more favourable for the forward reaction

Answer: A



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59. In Zeigler-Natta polymerisation of ethylene, the active species is



Answer: D



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60. Which of the following is less than zero during adsorption?

A. ΔG

B. ΔS

C. ΔH

D. All the above

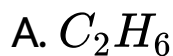
Answer: A



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61. Adsorption is the tendency of accumulation of molecular species at the surface of solid or liquid. Depending upon the nature of bonds or forces of attraction between adsorbate and adsorbent. It is classified between physisorption and chemisorption.

Which of the following gas molecules have maximum value enthalpy of physisorption?



D. H_2

Answer: C



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62. Adsorption is accompanied by the evolution of heat. Thus, according to Le Chatelier's principle the amount of surface adsorbed should

- (i) decrease with increase in temperature
- (ii) decrease with decrease in temperature

(iii) increase with increase in temperature

(iv) increase with decrease in temperature

A. increase with decrease in temperature

B. increase with increase in temperature

C. decrease with decrease in temperature

D. decrease with increase in temperature

Answer: A



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63. At low pressure, the fraction of the surface covered follows

- A. zero-order reaction
- B. second-order reaction
- C. first-order reaction
- D. fractional order

Answer: C



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64. At high pressure, the entire surface gets covered by a monomolecular layer of the gas follows

A. three-halved order

B. second-order

C. first-order

D. zero-order

Answer: D



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65. Which of the following statements is incorrect?

A. Adsorption always leads to a decrease in enthalpy and entropy of the system

B. Adsorption arises due to unsaturation of valence forces of atoms or molecules on the surface

C. Adsorption increases with rise in temperature

D. Adsorption decreases the surface energy

Answer: C



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66. During adsorption

A. $T \Delta S$ is positive

B. $\Delta H - T \Delta s$ is negative

C. ΔH is positive

D. $T \Delta S$ and ΔG become zero

Answer: B



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67. which of the following statements is not correct ?

A. Decrease of temperature and increase of pressure, both tend to cause increase in the magnitude of adsorption of a gas on a solid

B. The easily liquifiable gases adsorb more on solid

C. Greater the surface area per unit mass of the adsorbent, the greater is its capacity of adsorption

D. The graph of $\log_{10} x/m$ to $\log_{10} P$ is parabolic

Answer: D



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68. The isoelectric point of a colloiddally dispersed material is the pH value at which

- A. the dispersed phase migrate in an electric field
- B. the dispersed phase dose not migrate in an electric field
- C. the dispersed phase has pH equal to 7
- D. the dispersed phase has pH equal to zero

Answer: B



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69. peptization involves :

- A. Precipitation of colloidal particles
- B. Disintegration of colloidal aggregates
- C. Evaporation of dispersion medium
- D. Impact of molecules of the dispersion medium on the colloidal particles

Answer: B



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70. Which of the following is not the property of hydrophilic solutions ?

- A. High concentration of dispersed phase can be easily obtained
- B. Coagulation is reversible
- C. Viscosity and surface tension are nearly the same as that of water
- D. The charge of the particle depends on the pH of the medium and it may be positive, negative or zero

Answer: C



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71. Which one of the following characteristics is not correct for physical adsorption?

A. Adsorption increases with increase in temperature

B. Adsorption is spontaneous

C. Both enthalpy and entropy of adsorption are negative

D. Adsorption on solids is reversible

Answer: A



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72. The dispersed phase in colloidal iron (III) hydroxide and colloidal gold is positively and negatively charged respectively with of the following statement is not correct ?

A. Coagulation in both sols can be brought about by electrophoresis

B. Mixing the sols has no effect

C. Sodium sulphate solution causes coagulation in both sols

D. Magnesium chloride solution coagulates, the gold sol more readily than the iron (III) hydroxide sol

Answer: B



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73. Gold numbers of protective colloids A, B, C and D are 0.50, 0.01, 0.10 and 0.005 respectively.

The correct order of their protective powers is

A. $D < A < C < B$

B. $C < B < D < A$

C. $B < D < A < C$

D. $A < C < B < D$

Answer: D



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74. In the fermentation of sugar, glucose is converted into alcohol and CO_2 by the enzyme

A. Zymase

B. Invertase

C. Maltase

D. Diatase

Answer: A



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75. The volume of gases H_2 , CH_4 , CO_2 and NH_3 adsorbed by 1 g of charcoal at 288K are in the order :

A. H_2 , CH_4 , CO_2 , NH_3

B. CH_4 , CO_2 , NH_3 , H_2

C. CO_2 , NH_3 , H_2 , CH_4

D. NH_3 , CO_2 , CH_4 , H_2

Answer: D



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76. Protons accelerate the hydrolysis of esters .

This is an example os :

A. Heterogenous catalysis

B. Homogenous catalysis

C. Promoter

D. none of the above

Answer: B



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77. Which of the following is correct ?

A. Langmuir adsorption is highly specific

B. Vander Waal's adsorption is reversible

C. Both (a) and (b) are exothermic

D. All are correct

Answer: D



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78. Colloidal solution in which the dispersed phase has little affinity for the dispersion medium is called

A. Hydrophilic colloids

B. Lyophobic colloids

C. Lyophilic colloids

D. None of the above

Answer: B



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79. Colloidal sols can be purified by

- A. Filtration
- B. Peptization
- C. Sedimentation
- D. Dialysis

Answer: D



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80. An example of micelle is

A. Sodium stearate

B. As_2O_3 sol.

C. Solution of Na_2CO_3

D. Ruby glass

Answer: A



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81. The movement of dispersion medium under the influence of an electric field is called _____

.

A. Electrophoresis

B. Cataphoresis

C. Brownian movement

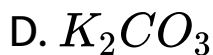
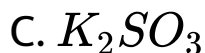
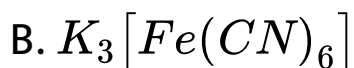
D. Electro-osmosis

Answer: D



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82. Which of the following electrolyte is most effective in causing the coagulation of a positively charged ferric hydroxide solution?



Answer: B



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83. Bredig's arc method cannot be used for the preparation of colloidal sol of :

A. Copper

B. Iron

C. Silver

D. Sodium

Answer: D



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84. on addition of 1 ml solution of 10 % $NaCl$ to 10 ml gold sol in the presence of 0.25g of starch,

the coagulation is just prevented. Strach has the following gold number

A. 0.025

B. 0.25

C. 250

D. 25

Answer: C



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85. In the preparation of AgI sol, the excess of $AgNO_3$ is added to potassium iodide solution.

The particles of the sol will acquire

- A. Negative charge
- B. Positive charge
- C. No charge
- D. Coagulate by themselves

Answer: B



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86. Isoelectric point is the pH at which colloidal particles

A. coagulate

B. become electrically neutral

C. can move towards either electrode with equal ease

D. All of the above

Answer: C



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87. The phenomenon when the composition of the activated complex includes a substance which does not take part stoichiometrically in the chemical process, but changes the kinetic properties of the system is called

A. Chemical equilibrium

B. Catalysis

C. Osmosis

D. None of these

Answer: B



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88. Which of the following is an example of associated colloid ?

A. Protein + water

B. Soap + water

C. Rubber + benzene

D. $As_2O_3 + Fe(OH)_3$

Answer: B



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89. Modern theory of heterogeneous catalysis is

A. Intermediate compound formation theory

B. Adsorption theory

C. A combination of intermediate compound formation and adsorption theory

D. None

Answer: C



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90. 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: B



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91. Which of the following catalysts is sensitive to temperature changes ?

A. Fe

B. Pt

C. Ni

D. Enzyme

Answer: D



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92. Which of the following acts as a negative catalysts ?

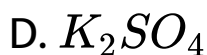
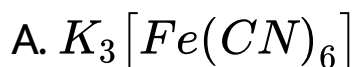
- A. Lead tetraethyl as antiknock compound
- B. Glycerol in decomposition of H_2O_2
- C. Ethanol in the oxidation of chloroform
- D. All the above

Answer: D



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



Answer: C



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94. The colligative property of a colloidal sol compared to the solution of non-electrolyte of same concentration will be

A. Same

B. Higher

C. Lower

D. Sometimes higher and sometimes lower

Answer: C



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95. In a colloidal state, the particle size of the dispersed phase ranges between 10^3 to 10^6 pm and the colloidal sol is of heterogeneous nature. Depending upon the ease with which these sols are formed, the colloidal sols are classified as lyophilic and lyophobic. The stability of a colloidal sol is due to the presence of charge on the sol particles and the neutralisation of the same is known as coagulation or precipitation. The coagulating power of the active ions of the electrolytes can be compared with the help of Hardy-Schulze Law. The protecting power of the

lyophilic sols can be compared with the help of gold number. Lesser the value of gold number, more will be the protecting power of the lyophilic sol.

On adding few drops of dilute HCl to freshly precipitated ferric hydroxide, a red coloured colloidal sol is obtained. The phenomenon is

Known as:

- A. Dialysis
- B. Protective action
- C. peptization
- D. Dissolution

Answer: C



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96. The potential difference between the fixed particles layer and the diffused layer having opposite charge is called :

- A. Zeta potential
- B. Streaming potential
- C. Donnan potential
- D. Colloidal potential

Answer: A



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97. surface tension of lyophilic sols is

A. Lower than H_2O

B. More than H_2O

C. Equal to H_2O

D. None

Answer: A



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98. For adsorption of a gas on a solid, the plot of $\log (x / m)$ vs $\log P$ is linear with a slope equal to [n being a whole number]:

A. K

B. $\log K$

C. n

D. $1/n$

Answer: D



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99. Which property of colloids is not dependent on the change on colloidal particles?

- A. Coagulation
- B. Electrophoresis
- C. Electro-osmosis
- D. Tyndall effect

Answer: D



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Test Your Grasp

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



Answer: C



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2. Hydrophilic colloids are stable due to

A. negative charge particles

B. large particle size

C. small particle size

D. layer of dispersion medium on its particles

Answer: D



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3. In physical adsorption, gas molecules are bound on the solid surface by

- A. Chemical forces
- B. Electrostatic forces
- C. Van der Waal's forces
- D. Gravitational forces

Answer: C



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4. Lyophilic sols are more stable than lyophobic sols because :

A. the colloidal particles have positive charges

B. the colloidal particles have no charge

C. the colloidal particles are solvated

D. there is strong repulsion in particles

Answer: C



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5. When the dispersion medium is gas, colloidal solution is

A. Hydrosol

B. Aquasol

C. Aerosol

D. Benzosol

Answer: C



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6. When a beam to light is passed through colloidal solution.

A. reflected

B. scattered

C. refracted

D. dispersed

Answer: B



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7. Migration of colloidal particles under the influence of electric field is known as.....

A. Electro-osmosis

B. Electrolysis

C. Electrogenesis

D. Electrophoresis

Answer: D



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8. Cleaning action of detergent is due to

A. Adsorption

B. Adsorption and emulsification

C. Washing

D. Only emulsification

Answer: B



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9. The role of a catalyst is to change

- A. heat of reaction
- B. equilibrium constant
- C. activation energy
- D. into the final product

Answer: C



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10. Emulsion, out of the following is

- A. milk

B. Cheese

C. Butter

D. Cloud

Answer: A



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11. Surface tension of hydrophilic solution is

A. lower than water

B. more than water

C. equal to water

D. none of these

Answer: A



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12. Which of the following is not a colloid ?

A. Ruby stone

B. Milk

C. Chlorophyll

D. Gelly

Answer: C



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13. The number of phases in colloidal system are

A. 1

B. 2

C. 3

D. 4

Answer: B



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14. Which of the following does not form lyophilic sol ?

A. Gelatin

B. Gum

C. As_2S_3

D. Starch

Answer: C



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15. Crystalloids differ from colloids mainly in respect of :

A. Electrical behaviour

B. Particle size

C. Solubility

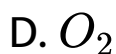
D. Nature of particle

Answer: B



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16. Identify the gas which is readily adsorbed by activated charcoal?



Answer: C



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17. The process of migration of dispersion medium under the influence of electric current is called

A. Electrophoresis

B. Dialysis

C. Electrolysis

D. Electro-osmosis

Answer: D



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18. The curve between adsorption and pressure at constant temperature is called as

A. adsorption isotherm

B. adsorption isobar

C. Adsorbate

D. Adsorbent

Answer: A



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19. Cloud represents an example

A. gas in solid

B. solid in gas

C. liquid in gas

D. gas in gas

Answer: C



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20. A colloidal solution of blood is an example of

,

A. Gel

B. Emulsion

C. Sol

D. Foam

Answer: C



[Watch Video Solution](#)

21. Physical adsorption is :

A. highly specific

B. irreversible

C. not specific

D. considerable at high temperature

Answer: C



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22. 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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23. The colloidal solution of Gelation is

A. Hydrophilic sol

B. hydrophobic sol

C. Emulsifier

D. None of these

Answer: A



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24. Tyndall phenomenon is exhibited by

A. NaCl solution

B. Starch solution

C. Urea solution

D. $FeCl_3$ solution

Answer: B



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25. In the chloroform solution, 2% ethanol is added, which acts as

A. Catalyst

B. Inhibitor

C. Reductant

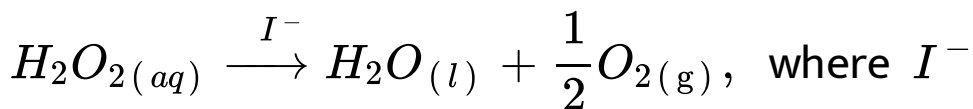
D. Oxidant

Answer: B



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26. In the reaction



is

A. Homogeneous catalyst

B. Heterogeneous catalyst

C. Inhibitor

D. Retarder

Answer: A



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27. In Haber process for the synthesis of ammonia which of the following catalysts are used ?

A. Fe, K_2O

B. K_2, Al_2O_3

C. Fe, Al_2O_3

D. Fe, K_2O, Al_2O_3

Answer: D



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28. In which of the following solvent soap will act as colloid ?

A. Water

B. Alcohol

C. Ether

D. Ester

Answer: A



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29. Long chain of protein synthesized by HIV can be cut into segments and AIDS can prevented.

The name of chemical that works out the cutting is enzyme

A. Catalase

B. Amylase

C. Anhydrase

D. Protease

Answer: D



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30. Which of the following can be future weapon to fight against cancer ?

A. Enzymes

B. Chemicals

C. Radiations

D. Quantum dots

Answer: D



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31. What is the colour of gold particles of nanometer size ?

A. Yellow

B. Red

C. Green

D. White

Answer: B



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32. Cod liver oil is

A. Water

B. Cod liver oil

C. Alcohol

D. 50 % Water and 50 % Alcohol

Answer: A



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33. Which is not lyophilic colloid ?

A. Milk

B. Gum

C. Fog

D. Blood

Answer: B



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34. Catalyst only

A. Decreases activation energy

B. Increases activation energy

C. Brings about equilibrium

D. None of these

Answer: A



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35. For adsorption of a gas on a solid, the plot of $\log (x / m)$ vs $\log P$ is linear with a slope equal to $[n \text{ being a whole number}]$:

A. k

B. $\log K$

C. n

D. $1/n$

Answer: D



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