



CHEMISTRY

BOOKS - MODERN PUBLICATION CHEMISTRY

(KANNADA ENGLISH)

SURFACE CHEMISTRY

Multiple Choice Questions Level I

1. Which of the following statements is not correct regarding physical and chemical adsorptions?

A. Physical adsorption is reversible while chemical adsorption is irreversible

B. Chemical adsorption forms multimolecular layer while physical adsorption form monomolecular layer.

C. Physical adsorption has low heat of adsorption than chemical adsorption.

D. Chemical adsorption is highly specific in nature while physical adsorption is not.

Answer: B



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2. The extent of physical adsorption:

A. zero

B. $20 - 50 \text{ lamol} - (1)$

C. $200 - 500 \text{ kJmol} - (1)$

D. very high.

Answer: B

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3. Which of the following statements is correct regarding physical adsorption?

A. It is irreversible,

B. The forces between adsorbate and adsorbent are strong forces

C. It forms multimolecular layers

D. It is specific in nature.

Answer: C

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4. In adsorption of acetic acid on charcoal, the acetic acid is:

- A. adsorbate
- B. adsorbent
- C. absorbent
- D. inner phase.

Answer: A



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5. Which of the following statements is correct regarding chemical adsorption?

- A. It forms monolayer.

- B. It is reversible in nature.
- C. It occurs at low temperature.
- D. It is not specific in nature.

Answer: A



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6. Which of the following statements is not correct regarding physical adsorption?

- A. It is not specific
- B. It forms monomolecular layers
- C. It has low heat of adsorption.
- D. It is reversible.

Answer: B



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7. The curve showing the variation of adsorption with pressure at constant temperature is called:

- A. Adsorption isotherm
- B. Adsorption isobar
- C. An Isostere
- D. Absorption isobar.

Answer: A



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8. The extent of physical adsorption:

- A. increases with rise of temperature.
- B. decreases with rise of temperature.
- C. is independent of temperature.
- D. first increases with increase in temperature upto a critical value and then decreases.

Answer: B



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9. How many layers are adsorbed in chemical adsorption?

- A. one
- B. two
- C. many
- D. zero. Catalysis

Answer: A

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10. A biological catalyst is:

- A. an amino acid
- B. a nitrogen molecule
- C. an enzyme
- D. a carbohydrate.

Answer: C

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11. The catalyst used in the hydrogenation of oils

A. V_2O_5

B. Fe

C. Ni

D. Pt

Answer: C



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12. Which of the following is not the characteristic of catalyst?

A. It changes equilibrium point

B. It initiates the reaction

C. It alters the rate of a reaction

D. It increases the average K.E. of molecules.

Answer: C

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13. Which one of the following statements is not true regarding catalyst ?

- A. A catalyst remains unchanged at the end of the reaction.
- B. A catalyst can initiate a reaction,
- C. A catalyst does not alter the equilibrium in a reversible reaction.
- D. Catalysts are sometimes very specific in terms of reactions.

Colloids

Answer: B

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14. The zig-zag motion of colloidal particles was first observed by:

- A. John Tyndall
- B. Robert Brown
- C. Zsigmondy
- D. Ostwald.

Answer: B



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15. The colloidal system in which the disperse phase and dispersion medium are both liquids is known

- A. a gel
- B. an aerosol

C. an emulsion

D. a foam.

Answer: C

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16. Freundlich adsorption isotherm is:

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

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

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

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

Answer: C

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17. Milk is an example of colloidal system of:

- A. Liquid dispersed in gas
- B. Gas dispersed in as
- C. Solid dispersed in gas
- D. Liquid dispersed in liquid.

Answer: D

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18. Freshly prepared precipitates can be easily dispersed by shaking it with dispersion medium. The process is called:

- A. Peptisation
- B. Electrophoresis

C. Dispersion

D. Dialysis.

Answer: A



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19. The example of liquid as dispersion medium in colloidal system is:

A. Smoke

B. Milk

C. Fog

D. Cheese

Answer: B



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20. The number of phases in a colloidal system is:

A. 1

B. 2

C. 3

D. 4

Answer: B



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

A. Filtration

B. Electrophoresis

C. Dialysis

D. Ultra-filtration

Answer: C



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22. The movement of colloidal particles under the influence of applied electric field is called:

A. Dialysis

B. Tyndall effect

C. Electrophoresis

D. Emulsion.

Answer: C



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23. The size of colloidal particles is in the range:

A. $0.1nm - 1nm$

B. $1nm - 100nm$

C. $100nm - 1000nm$

D. $1000nm - 10000nm$.

Answer: B



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24. An example of micelle is:

A. Sodium stearate

B. Gold sol

C. Solution of NaCl

D. Ruby glass.

Answer: A



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25. An emulsion is a colloidal system consisting of:

A. two solids

B. two liquids

C. one gas and one solid

D. one gas and one liquid.

Answer: B



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26. Purification of colloids is done by:

- A. heating
- B. precipitation
- C. coagulation
- D. dialysis.

Answer: D

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27. The average molecular mass of colloidal particles can be accurately determined by:

- A. Measurement of osmotic pressure

B. Tyndall effect

C. Brownian movement

D. Flocculation value.

Answer: A



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28. Which of the following is most effective electrolyte in causing the flocculation of a negatively arsenious sulphide sol?

A. KCl

B. $MgCl_2$,

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

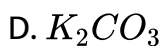
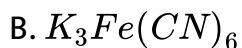
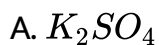
D. $AlCl_3$.

Answer: D



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29. Which of the following electrolytes will be most effective in causing the coagulation of a positively charged ferric hydroxide sol?



Answer: B



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30. 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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31. Cheese is a colloidal:

A. Gas in liquid

B. Liquid in solid

C. Gas in solid

D. Solid in gas.

Answer: D



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32. Which of the following is a lyophobic colloid?

A. Starch

B. Sulphur

C. Gelatin

D. Gum arabic.

Answer: D



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33. 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. suspension of casein in water.

Answer: C

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34. Which of the following metal sols cannot be prepared by Bredig's are method?

- A. Copper
- B. Potassium
- C. Gold
- D. Platinum.

Answer: B

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35. Detergent action of soaps and synthetic detergents is due to their:

A. higher molecular weight

B. Ionisation

C. emulsifying properties

D. Interracial area

Answer: C

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36. Gold number is minimum for:

- A. Gelatin
- B. Gum arabic
- C. Starch
- D. Egg albumin.

Answer: A

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37. Which is the correct statement in case of milk?

- A. Milk is an emulsion of fat in water
- B. Milk is an emulsion of protein in water
- C. Milk is stabilized by protein

D. Milk is stabilized by fat.

Answer: A



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38. Clouds represent an example of dispersion of

A. Gas in solid

B. Solid in gas

C. Gas in gas

D. Liquid in gas.

Answer: D



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39. Vanishing cream is an example of:

- A. Solid emulsion
- B. Foam
- C. Lyophile sol
- D. Suspension

Answer: A



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40. A colloidal solution in which a solid is dispersed in a liquid is called:

- A. Gel
- B. Emulsion

C. Sol

D. Precipitate.

Answer: C



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41. Colloids are purified by

A. Peptisation

B. Coagulation

C. Dialysis

D. Flocculation

Answer: C



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42. Physical adsorption is:

- A. Highly specific
- B. Irreversible
- C. Considerable at high temperature
- D. Not very specific.

Answer: D



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43. Aerosols:

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

D. Solid in liquid.

Answer: B

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44. Which of the following is hydrophobic sol?

A. Starch

B. Gum

C. Gelatin

D. Protein.

Answer: D

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45. Which of the following is a positively charged sol?

A. Gold

B. Arsenious sulphide

C. Ferric hydroxide

D. Silicic acid

Answer: C



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46. 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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47. The minimum concentration of an electrolyte required to cause coagulation of a sol is called its:

A. flocculation value

B. protective value

C. gold number

D. coagulation number.

Answer: A



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48. The emulsifying agent in milk is:

- A. Casein
- B. Gelatin
- C. Gum arabic
- D. None of these.

Answer: A



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49. Which of the following reactions gives a colloidal substance?

- A. coagulates
- B. precipitates

C. gets diluted

D. does not change.

Answer: A



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50. Random motion of colloidal particles is known as:

A. Dialysis

B. Brownian movement

C. Electro-osmosis

D. Tyndall effect.

Answer: B



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51. The method commonly employed for the destruction of colloidal solution is:

- A. addition of electrolytes
- B. diffusion through animal membrane
- C. condensation
- D. dialysis.

Answer: A

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52. Identify the gas which is readily adsorbed by activated charcoal:

- A. N_2
- B. SO_2

C. H_2

D. O_2 .

Answer: B



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53. Fog is a colloidal solution of

A. Smoke

B. Milk

C. Fog

D. Cheese.

Answer: A



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54. Colloidal particles exhibit Tyndall effect due to:

- A. polarisation of light
- B. scattering of light
- C. reflection of light
- D. refraction of light,

Answer: B



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55. Crystalloids differ from colloids mainly in respect

- A. electrical behaviour
- B. particle size
- C. solubility

D. particle nature.

Answer: B

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56. The gold numbers of a few protective colloids are:

A Starch = 25, (B) Gelatin = 0.005 – 0.01. (C) Haemoglobin = 0.03.

(D) Dextrin = 6 – 123 Which is the best protective colloid?

A. A

B. B

C. C

D. D

Answer: B

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57. Which of the following statements is false?

- A. Colloidal sols are heterogeneous
- B. Colloids carry +ve or- ve charge
- C. Colloids show Tyndall effect
- D. The size range of colloidal particles is $10 - 2000\text{\AA}$.

Answer: D

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58. Hair cream is an example of

- A. gel
- B. sol

C. aerosol

D. emulsion

Answer: D

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59. Which of the following is/are true about colloidal solution?

A. It is homogeneous solution

B. It does not diffuse

C. Size of the particles is between $10^{-9}10^{-7}cm$

D. Show Tyndall effect

Answer: D

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60. 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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Multiple Choice Questions Level II

1. According to Freundlich adsorption isotherm, the adsorption at low pressure is proportional to:

A. P

B. $1/P$

C. P°

D. P^n , (where $n = 0$ to 1).

Answer: A



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2. Which of the following has highest coagulating power for As_2S_3 sol ?

A. SO_4^{2-}

B. Al^{3+}

C. PO_4^{3-}

D. K^+ .

Answer: B

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3. A dispersion of tiny droplets of one liquid in another is called:

A. Gel

B. Sol

C. Emulsion

D. Lyophilic colloid.

Answer: C

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4. The presence of electrical charge on colloidal particles is indicated by:

- A. electrolysis
- B. dialysis
- C. electrophoresis
- D. Tyndall effect.

Answer: C



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5. Soaps essentially form a colloidal solution in water and remove the greasy matter by:

- A. coagulation

B. emulsification

C. adsorption

D. absorption.

Answer: B



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6. The sky looks blue due to:

A. reflection

B. scattering

C. dispersion effect

D. transmission.

Answer: B



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7. The coagulation of 10 ml of gold sol is just prevented on adding 1 ml solution of 10% NaCl in the presence of 0.025 g of starch. The gold number of starch is:

- A. 0.25
- B. 0.025
- C. 2.5
- D. 250.

Answer: C

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8. During the preparation of AgI sol, the excess of $AgNO_3$, is added to potassium iodide. The particles of the sol will acquire:

- A. positive charge
- B. negative charge
- C. no charge
- D. unpredictable.

Answer: B

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9. The phenomenon of migration of dispersed medium under the influence of electric current is called:

- A. Dialysis
- B. Electrophoresis
- C. Electro-osmosis
- D. Electrolysis.

Answer: C

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10. The gold numbers of three protective colloids A, B and C are 0.05, 0.01 and 0.5 respectively. The decreasing order of their protective power is:

- A. *B, C, A*
- B. *A, B, C*
- C. *B, A, C*
- D. *C, A, B.*

Answer: C

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11. Gelatin is mostly added during preparation of Icecream. This helps to:

- A. prevent colloid formation
- B. to stabilize the colloid and prevent crystallisation
- C. to improve the flavour
- D. to provide lower temperature for setting of

Answer: B

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12. Gold number gives:

- A. amount of gold present in a colloid
- B. amount of gold required to coagulate a colloid
- C. amount of gold required to protect a colloid

D. None of the above.

Answer: D

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13. On adding a few drops of dil HCl to a freshly precipitated ferric hydroxide, a red coloured colloidal sol is obtained. This phenomenon is called:

A. Peptisation

B. Dialysis

C. Protective

D. Dissolution.

Answer: A

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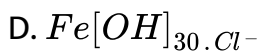
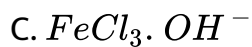
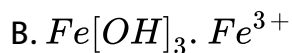
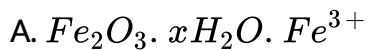
14. Alguld is found to scatter a beam of light but leaves no residue when passed through the filter paper. The liquid can be described as:

- A. a suspension
- B. a true solution
- C. a colloidal solution
- D. oil,

Answer: C

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15. When $FeCl_3$, is shaken with freshly precipitated $Fe(OH)_3$, then sol formed is:



Answer: B

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16. Extent of physisorption of a gas increases with

A. Increase in temperature.

B. decrease in temperature.

C. decrease in surface area of adsorbent.

D. decrease in strength of van der Waals forces.

Answer: B

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17. Extent of adsorption of adsorbate from solution phase increases with

- A. Increase in amount of adsorbate in solution.
- B. decrease in surface area of adsorbent
- C. Increase in temperature of solution
- D. decrease in amount of adsorbate in solution.

Answer: A

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18. Which one of the following is not applicable to the phenomenon of adsorption ?

A. $\Delta H > 0$

B. $\Delta G < 0$

C. $\Delta S < 0$

D. $\Delta H < 0$

Answer: A

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19. On the basis of data given below, predict which of the following gases shows least adsorption on a definite amount of charcoal ?

Gas	CO_2	SO_2	CH_4	H_2
Critical temp/K	304	630	190	33

A. CO_2

B. SO_2

C. CH_4

D. H_2

Answer: D



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20. Which of the following will show Tyndall effect ?

A. Aqueous solution will show below critical micelle concentration.

B. Aqueous solution of soap above critical micelle concentration.

C. Aqueous solution of sodium chloride.

D. Aqueous solution of sugar.

Answer: B

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21. Which of the following electrolytes will have maximum coagulating value for AgI/Ag^+ sol ?

A. Na_2S

B. Na_3PO_4

C. Na_2SO_4

D. $NaCl$

Answer: B

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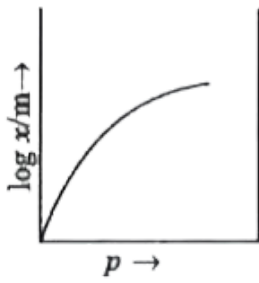
22. The process which is responsible for the formation of delta at a place where rivers meet the sea is

- A. Emulsification
- B. Colloid formation
- C. Coagulation
- D. Peptisation

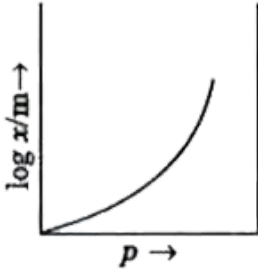
Answer: C

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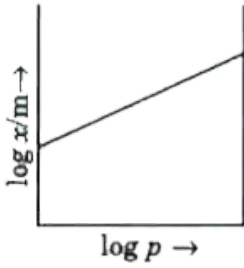
23. Which of the following curve is in accordance with Freundlich adsorption isotherm?



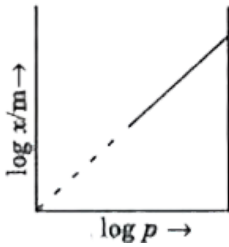
A.



B.



C.



D.

Answer: C



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24. Purple of cassius is colloidal sol of :

- A. Silver
- B. Gold
- C. Copper
- D. Platinum.

Answer: B

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25. Ferric chloride is applied to stop bleeding because

- A. Fe^{3+} ions coagulate blood which is a negatively charged sol.

B. $FeCl_3$ reacts with the constituents of blood to form a complex.

C. Cl^+ ions coagulate blood which is a positively charged sol.

D. Blood absorbs $FeCl_3$.

Answer: A

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26. For the adsorption of a gas on a solid, the plot of $\log \frac{x}{m}$ versus $\log P$ is linear with slope equal to (n is whole number)"

A. k

B. $\log k$

C. n

D. $1/n$.

Answer: D

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27. The colour of the colloidal particles of gold obtained by different methods differ because of :

- A. variabel valency of gold
- B. different concentrations of gold particles
- C. different types of impurities
- D. different diameters of colloidal particles.

Answer: D

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28. The stability of a lyophobic colloid is due to

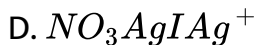
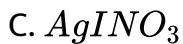
- A. charge on their particles
- B. the smaller size of the particles
- C. the large size of the particles
- D. a large medium of dispersion.

Answer: A

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29. When potassium iodide is added to silver nitrate solution. The sol formed may be written as :

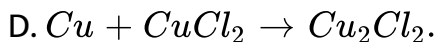
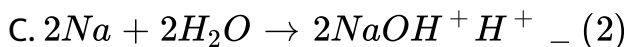
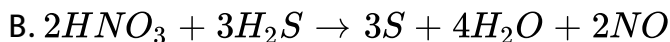
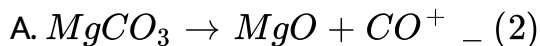
- A. AgI^-
- B. $AgI Ag^+$



Answer: B

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30. Which of the following reactions gives a colloidal substance?



Answer: B

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31. The cause of Brownian movement is:

A. heat changes in the liquid state

B. conventional 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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32. 00 mL of a colloidal solution is completely precipitated by addition of 5.6 mL of 1 M NaCl solution. The coagulation value of NaCl is

A. 56

B. 28

C. 14

D. 5.6

Answer: A



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33. At CMC the surfact molecules:

A. decompose

B. associate

C. become completely soluble

D. dissociate

Answer: B

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34. Which of the following is not correct regarding the adsorption of a gas on the surface of a solid?

- A. On increasing temperature, adsorption increases continuously
- B. Enthalpy and entropy changes are negative
- C. Adsorption is more for specific substance
- D. It is a reversible reaction.

Answer: A

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35. The Langmuir adsorption isotherm is deduced using the assumption

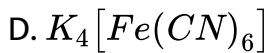
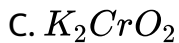
- A. the adsorption sites are equivalent in their ability to adsorb the particles
- B. the heat of adsorption varies with coverage.
- C. the adsorbed molecules interact with each other.
- D. the adsorption takes place in multilayers.

Answer: A

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36. Which one of the following will have the highest coagulating power for ferric hydroxide sol?

- A. NaCl



Answer: D



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



D. All of these.

Answer: D



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38. Adsorption of gases on solid surface is generally an exothermic process because

- A. Free energy increases
- B. Entropy decreases
- C. Enthalpy is positive
- D. Entropy increases.

Answer: B

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39. Alum helps in purifying water by:

- A. forming silicon complex with clay particles

- B. sulphate part which combines with dirt and removes it
- C. aluminium which coagulates the mud particles
- D. making mud water soluble.

Answer: C

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40. Which of the following statements is not correct regarding physical adsorption?

- A. Adsorption increases with increase in
- 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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41. Rate of physisorption increases with:

- A. decrease in temperature
- B. increase in temperature
- C. decrease in pressure
- D. decrease in pressure

Answer: A



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42. Identify the correct statement regarding enzymes:

- A. Biological enzymes are specific biological catalysts that can normally function at very high temperature ($T \approx 1000K$)
- B. Enzymes are normally heterogeneous catalysts that are very specific in action
- C. Enzymes are specific biological catalysts that cannot be poisoned
- D. Enzymes are specific biological catalysts that possess well define active sites.

Answer: D

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43. 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. $\frac{V_c}{V_s} = 1$

B. $\frac{V_c}{V_s} = 10^3$

C. $\frac{V_c}{V_s} = \approx 10^{-3}$

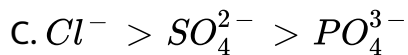
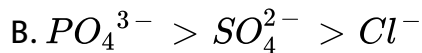
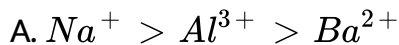
D. $\frac{V_c}{V_s} \approx 10^{-3}$

Answer: D



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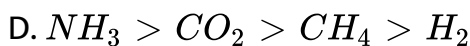
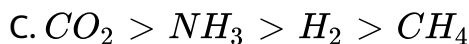
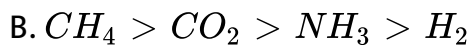
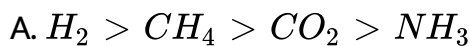
44. The coagulating power of an electrolyte for arsenious sulphide sol decreases in the order:



Answer: D

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45. Select the wrong statement.



Answer: D

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46. Select the wrong statement

- A. If a very small amount of $AlCl_3$ is added to gold so, coagulation occurs, but if a large quantity of $AlCl_3$ is added, there is no coagulation
- B. Organic ions are more strongly adsorbed on charged surfaces in comparison to inorganic ions.
- C. Both emulsifier and peptising agents stabilise colloids but their actions are different.
- D. Colloidal solutions are thermodynamically stable.

Answer: A



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47. Adsorption is an exothermic process. The amount of substance adsorbed should

- A. decrease with decrease in temperature.
- B. decrease with increase in temperature.
- C. decrease with decrease in temperature.
- D. no change with increase in temperature.

Answer: A

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48. Which one of the following impurities present in colloidal solution cannot be removed by electrodialysis?

- A. Sodium chloride
- B. Potassium sulphate
- C. Urea
- D. Calcium chloride

Answer: C

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49. The disease kala azar is cured by

A. colloidal antimony

B. milk of magnesia

C. argyrols

D. colloidal gold

Answer: A

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50. Which is correct about physical adsorption?

- A. High temperature and high pressure favour adsorption.
- B. High temperature and low pressure favour adsorption.
- C. Low temperature and high pressure favour adsorption.
- D. Low temperature and low pressure favour adsorption.

Answer: C

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51. In the adsorption of a gas on solid, Freundlich isotherm is obeyed. The slope of the plot is zero. The extent of adsorption is

- A. directly proportional to the pressure of the gas
- B. inversely proportional to the pressure of the gas
- C. directly proportional to the square root of the pressure of the gas

D. independent of the pressure of the gas

Answer: D

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52. between 0 and 1 in all cases

A. between 2 and 4 in all cases

B. 1 in case of physical adsorption

C. 1 in case of chemisorption

D.

Answer: A

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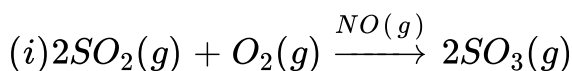
53. Which one of the following statements is incorrect about enzyme catalysis ?

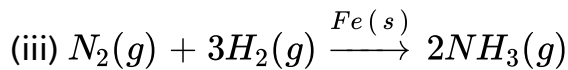
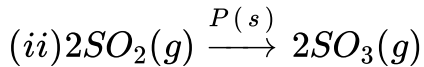
- A. Enzymes are mostly proteinous in nature.
- B. Enzyme action is specific.
- C. Enzymes are denatured by ultraviolet rays and at high temperature.
- D. Enzymes are least reactive at optimum temperature.

Answer: D

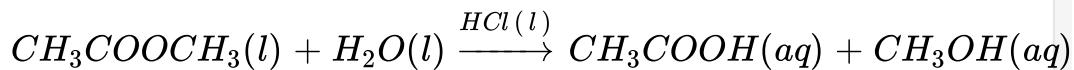
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54. In which of the following reactions heterogeneous catalysis is involved ?





(iv)



A. (ii), (iii)

B. (ii), (iii), (iv)

C. (i), (ii), (iii)

D. (iv)

Answer: A



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55. Which of the following process is not responsible for the presence of electric charge on the sol particles ?

- A. Electron capture by sol particles.
- B. Adsorption of ionic species from solution.
- C. Formation of Helmholtz electric double layer.
- D. Absorption of ionic species from solution.

Answer: A



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Multiple Choice Questions Level Iii

1. Which of the following statements is incorrect regarding physisorption ?

- A. It occurs because of van der Waals' forces
- B. More easily liquefiable gases are adsorbed readily

C. Under high pressure it results into multimolecular layer on adsorbent surface

D. Enthalpy of adsorption is low and positive.

Answer: D

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2. Among the electrolytes Na_2SO_4 , $CaCl_2$, $Al_2(SO_4)_3$ and NH_4Cl , the most effective coagulating agent for Sb_2S_3 sol is

A. Na_2SO_4

B. $CaCl_2$

C. $Al_2(SO_4)_3$

D. NH_4Cl

Answer: C

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3. Which of the following is correct

A. $\frac{x}{m} \propto P^0$

B. $\frac{x}{m} \propto p^1$

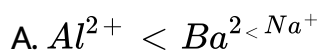
C. $\frac{x}{m} \propto 1/n$

D. All the above are correct for different ranges of pressure.

Answer: B

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4. The coagulating power of electrolytes having ions Na^+ , Al^{3+} and Ba^{2+} for arsenic sulphide sol increase in the order :



Answer: B

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5. 3 g of activated charcoal was added to 50 mL of acetic acid solution (0.06N) in a flask. After an hour it was filtered and the

strength of the filtrate was found to be $0.042N$. The amount of acetic acid adsorbed (per gram of charcoal) is:

- A. 18 mg
- B. 36 mg
- C. 42 mg
- D. 54 mg

Answer: A



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Recent Examination Questions

1. Rate of physical adsorption increases with

- A. Decrease in temperature

- B. Decrease in pressure
- C. Increase in temperature
- D. Decrease in surface area.

Answer: A



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2. Which one of the following does NOT involve coagulation ?

- A. Formation of delta regions
- B. Peptization
- C. Treatment of drinking water by potash alum
- D. Clotting of blood by the use of ferrie

Answer: B



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

- A. Manufacture of sulphuric acid by contact process
- B. Manufacture of ammonia by Haber's process
- C. Hydrolysis of sucrose in presence of dilute hydrochloric acid
- D. Hydrogenation of oil.

Answer: C

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4. Dialysis can be used to separate

- A. glucose and fructose

B. protein and starch

C. glucose and protein

D. glucose and NaCl.

Answer: C



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5. During the adsorption of a gas on the surface of a solid, which of the following is true ?

A. $\Delta G < 0$, $\Delta H > 0$, $\Delta S < 0$

B. $\Delta G > 0$, $\Delta H < 0$, $\Delta S < 0$

C. $\Delta G < 0$, $\Delta H < 0$, $\Delta S < 0$

D. $\Delta G < 0$, $\Delta H < 0$, $\Delta S > 0$

Answer: C



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6. All colloidal dispersions have

- A. variabel valency of gold
- B. low osmotic pressure
- C. no osmotic pressure
- D. high osmotic pressure.

Answer: B



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7. Silver iodide is used for producing artificial rain because AgI

- A. is easy to spary at high altitude

- B. is easy to synthesize
- C. has crystal structure similar to Ice
- D. is insoluble in water,

Answer: C

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8. The stability of a lyophobic colloid is due to

- A. adsorption of covalent molecules on the colloid
- B. the size of the particles
- C. the charge on the particles
- D. Tyndall effect.

Answer: C

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9. Which of the following cations will have minimum flocculation value for arsenic sulphide sol?

- A. Na^+
- B. Mg^{2+}
- C. Ca^{2+}
- D. Al^{3+}

Answer: D



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10. Adsorption theory is applicable for

- A. homogeneous catalysis

B. heterogeneous catalysis

C. autocatalysis

D. induced catalysis.

Answer: B



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11. For Freundlich isotherm a graph of $\log \frac{x}{m}$ is plotted against $\log P$. The slope m of the line and its y-axis intercept, respectively corresponds to

A. $\frac{1}{n}k$

B. $\log \frac{1}{n}, k$

C. $\frac{1}{n}, \log k$

D. $\log \frac{1}{n}, \log k$

Answer: C

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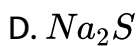
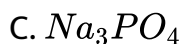
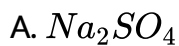
12. Gold sol is not a

- A. a macromolecular colloid
- B. a lyophobic colloid
- C. a multimolecular colloid
- D. negatively charged colloid.

Answer: A

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13. The electrolyte having maximum flocculation value for AgI / Ag^+ sol, is



Answer: B

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14. Which of the following colloids cannot be easily coagulated ?

A. Macromolecular colloids

B. Lyophobic colloids

C. Irreversible colloids

D. Multimolecular colloids.

Answer: A

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15. Sulphur sol is an example of :

A. Associated colloid

B. Multi molecular colloid

C. Hydrophilic colloid.

D. Macro molecular colloid

Answer: B

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