CHEMISTRY

BOOKS - FULL MARKS CHEMISTRY (TAMIL ENGLISH)

SURFACE CHEMISTRY

Textbook Evaluation Choose The Correct Answer

1. For freudlich isotherm a graph of $\log \frac{x}{m}$ is plotted againts log P. The slope 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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2. Which of the following is incorrect for physisorption?

A. reversible

B. increases with increase in temperature

C. low heat of adsorption

D. increases with increase in surface area

Answer: B

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3. Which one of the following characteristics are associated with adsorption?

A. ΔG and ΔH are negative but ΔS is positive

B. ΔG and ΔS are negative but ΔH is positive

C. ΔG is negative but ΔH and ΔS are positive

D. ΔG, ΔH and ΔS all are negative

Answer: D

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4. Fog is colloidal solution of .....

A. solid in gas

B. gas in gas

C. liquid in gas

D. gas in liquid

Answer: C

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5. Assertion : Coagulation power of Al^{3+} is more than Na^{+} .

Reason : greater the valency of the flocculating ion added, greater is its power to cause precipitation .

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

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

assertion.

C. assertion is true but reason is false

D. both assertion and reason are false.

Answer: A

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6. Statement : To stop bleeding from an injury, ferric chloride can be applied. Which comment about the statement is justified?

A. It is not true, ferric chloride is a poison.

B. It is true, Fe^{3+} ions coagulate blood which is a negatively charged sol

C. It is not true, ferric chloride is ionic and gets into the blood stream.

D. It is true, coagulation takes place because of formation of negatively charged sol with Cl^{-}

Answer: B

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7. Hair cream is .....

A. gel

B. emulsion

C. solid sol

D. sol.

Answer: B

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8. Which one of the following is correctly matched ?

(*a*)	Emulsion	–	Smoke
(*b*)	Gel	–	butter
(*c*)	foam	–	Mist
(*d*)	whipped cream	–	sol

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9. The most effective electrolyte for the coagulation of As_2S_3 Sol is .....

A. NaCl

B. $Ba(NO_3)_2$

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

D. Al^{3+}

Answer: D

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10. Which one of the is not a surfactant ?

A. $CH_3 - (CH_2)_{15} - N - (CH_3)_2CH_2Br$

B. $CH_3 - (CH_2)_{15} - NH_2$

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

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

Answer: B

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11. The phenomenon observed when a beam of light is passed through a colloidal solution is .....

A. Cataphoresis

B. Electrophoresis

C. Coagulation

D. Tyndall effect

Answer: D

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12. In an electrical field , the particles of a colloidal system move towards cathode . The coagulation of the same sol is studied using K_2SO_4 (i) , Na_3PO_4

(ii) , $K_4[Fe(CN)_6]$ (iii) and NaCl (iv) . Their coagulation power should be .....

A. $II > I > IV > III$

B. $III > II > I > IV$

C. $I > II > III > IV$

D. none of these

Answer: B

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13. Collodion is a 4% solution of which one of the following compounds in alcohol - ether mixture?

A. Nitroglycerine

B. Cellulose acetate

C. Glycoldinitrate

D. Nitrocellulose

Answer: D

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

A. manufacture of ammonia by Haber's process

B. manufacture of sulphuric acid by contact process

C. hydrogenation of oil

D. Hydrolysis of sucrose in presence of all HCI

Answer: D

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15. Match the following:

A	V_3O_5	*i.*	High density polyethylene
B	Ziegler – Natta	*ii.*	PAN
C	Peroxide	*iii.*	NH_3
D	Finely divided Fe	*iv.*	H_2SO_4

A. $\begin{matrix} A & B & C & D \\ iv & i & ii & iii \end{matrix}$

B. $\begin{matrix} A & B & C & D \\ i & ii & iv & iii \end{matrix}$

C. $\begin{matrix} A & B & C & D \\ ii & iii & iv & i \end{matrix}$

D. $\begin{matrix} A & B & C & D \\ iii & iv & ii & i \end{matrix}$

Answer: A

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16. The coagulation values in millimoles per litre of the electrolytes used for the coagulation of AS_2S_3 are given below

(I) (NaCl)=52 (II) (BaCl)=0.69 (III) $(MgSO_4) = 0.22$

The correct order of their coagulating power is .....

A. $III > II > I$

B. $I > II > III$

C. $I > III > II$

D. $II > III > I$

Answer: A

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17. Adsorption of a gas on solid metal surface is spontaneous and exothermic , then .....

A. ΔH increases

B. ΔS increases `

C. ΔG increases

D. ΔS decreases

Answer: D

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18. If x is the amount of adsorbate and m is the amount of adsorbent , which of the following relations is not related to adsorption process ?

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

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

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

D. $x/m=PT$

Answer: D

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

A. Both magnitude and sign of the charge on the ion.

B. Size of the ion alone

C. the magnitude of the charge on the ion alone

D. the sign of charge on the ion alone

Answer: A

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20. Match the following :

A	Pure nitrogen	*i.*	Chlorine
B	Haber process	*ii.*	Sulphuric acid
C	Contact process	*iii.*	Ammonia
D	Deacons Process	*iv.*	sodium azide (or) Barium azide

A. $\begin{matrix} A & B & C & D \\ i & ii & iii & iv \end{matrix}$

B. $\begin{matrix} A & B & C & D \\ ii & iv & i & iii \end{matrix}$

C. $\begin{matrix} A & B & C & D \\ iii & iv & ii & i \end{matrix}$

D. $\begin{matrix} A & B & C & D \\ iv & iii & ii & i \end{matrix}$

Answer: D

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Textbook Evaluation Short Answer Question

1. Give two important characteristics of physisorption.

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2. Differentiate physisorption and chemisorption.

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3. In case of chemisorption, why adsorption first increases and then decreases with temperature?

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4. Which will be adsorbed more readily on the surface of charcoal and why, NH_2 or CO_2?

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5. Heat of adsorption is greater for chemisorptions than physisorption. Why?

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6. In a coagulation experiment 10 mL of a colloid (X) is mixed with distilled water and 0.1M solution of an

electrolyte AB so that the volume is 20 mL. It was found that all solutions containing more than 6.6 mL of AB coagulate with in 5 minutes. What is the flocculation values of AB for sol (X)?

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7. Peptising agent is added to convert precipitate into colloidal solution. Explain with an example.

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8. What happens when a colloidal sol of $Fe(OH)_3$ and As_(2)S_(3)` are mixed?

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9. What is the difference between a sol and a gel?

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10. Why are lyophillic colloidal sols are more stable than lyophobilc colloidal sol?

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11. Addition of Alum purifies water. Why?

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12. What are the factors which influence the adsorption of a gas on a solid?

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13. What are enzymes? Write a brief note on the mechanism of enzyme catalysis.

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14. What do you mean by activity and selectivity of catalyst?

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15. Describe some feature of catalysis by Zeolites.

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16. Give three uses of emulsions.

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17. Why does bleeding stop by rubbing moist alum

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18. Why is desorption important for a substance to act as good catalyst?

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19. Comment on the statement: Colloid is not a substance but it is a state of substance.

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20. Explain any one method for coagulation

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21. Write a note on electro osmosis

View Text Solution

22. Write a note on catalytic poison

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23. Explain intermediate compound formation theory of catalysis with an example.

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24. What is the difference between homogenous and hetrogenous catalysis?

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25. Describe adsorption theory of catalysis.

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Additional Questions Choose The Correct Answer And Write It

1. Which one of the following is used to absorb colourants from sugar?

A. Silica gel

B. Magnesia

C. Charcoal

D. Alumina

Answer: C

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2. Silica gel is usually adsorb.....

A. Colourants

B. Hydrogen

C. Liquid Helium

D. Water

Answer: D

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3. Which one of the following is called adsorbate?

A. Charcoal

B. Silica gel

C. Ammonia

D. Magnesia

Answer: C

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4. Which of the following can act as adsorbent?

A. Silica gel

B. Ammonia

C. Colourants

D. Water

Answer: A

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5. The surface of separation of two phases where the concentration of adsorbed molecule is high is known as

A. adsorbate

B. adsorbent

C. interface

D. residual phase

Answer: C

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6. Consider the following statement:

(i) High adsorption is the result of high surface area of the adsorbent.

(ii) The process of removing an adsorbed substance

is called absorption.

(iii) Adsorbed substance is called an adsorbate.

Which of the above statement is / are not correct?

A. i & ii

B. ii & iii

C. ii only

D. iii only

Answer: C

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7. Which metal cannot act as adsorbent?

A. Pt

B. Ag

C. Pd

D. Al

Answer: D

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8. Consider the following statements:

(i) Adsorption is spontaneous process.

(ii) Adsorption is always accompanied by increase in free energy.

(iii) Adsorption is an endothermic reaction.

Which of the above statement is / are not correct?

A. i only

B. ii & iii

C. ii & i

D. i only

Answer: B

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9. Absorption and adsorption if simultaneously occurs, it is called .....

A. occlusion

B. sorption

C. desorption

D. dissolution

Answer: B

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10. The process of sorption of gases on metal surface is called .....

A. Desorption

B. Dissolution

C. Occlusion

D. Condensation

Answer: C

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11. When gas molecules are held to the surface by the formation of chemical bond the heat energy released is nearly equal to .....

A. 40 kJ/mole

B. 800 kJ/mole

C. 400 kJ/mole

D. 4 kJ/mole

Answer: C

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12. Which of the following is physical adsorption?

A. Adsorption of H_2 on nickel

B. Friedel crafts reaction

C. Synthesis of SO_3, in the presence of NO

D. Corrosion of iron

Answer: A

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13. Which one of the following is chemical adsorption?

A. Adsorption of O_2, on tungsten

B. Adsorption of ethyl alcohol vapours on nickel

C. Adsorption of N_2, on mica

D. Rusting of iron

Answer: D

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14. Which of the following occurs at low temperature?

A. Adsorption of O_2, on tungsten

B. Adsorption of N_2 on mica

C. Adsorption of ethyl alcohol vapours on nickel

D. Adsorption of H_2 on nickel

Answer: B

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15. Consider the following statements:

(i) Chemical adsorption is an instantaneous process

(ii) Multilayer of the adsorbate is formed on the adsorbent

(iii) Chemisorption involves the formation of

activated complex.

Which of the above statement is / are not correct?

A. i & ii

B. iii only

C. i only

D. ii only

Answer: A

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16. Consider the following statements:

(i) In chemisorption, heat of adsorption is high

(ii) Monolayer of the adsorbate is formed during chemisorption

(iii) Physisorption increases with increase in temperature.

Which of the above statement is / are not correct?

A. i & ii

B. iii only

C. ii only

D. i only

Answer: B

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17. The extent of surface adsorption does not depend on

A. Nature of the adsorbent

B. Pressure

C. Temperature

D. Density

Answer: D

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18. Which of the following gases is not a permanent gas?

A. NH_3

B. H_2

C. N_2

D. O_2

Answer: A

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19. Which of the following is liquefiable gas?

A. SO_2

B. H_2

C. N_2

D. O_2

Answer: A

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20. Which one of the following is a permanent gas?

A. NH_3

B. SO_3

C. N_2

D. CO_2

Answer: C

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21. Consider the following statements:

(i) When pressure increases, the amount of physisorption also increases.

(ii) Permanent gases like $H_2, N_2,$ and O_2 cannot

be liquefied easily.

(iii) Lesser is the surface area, higher is the amount adsorbed.

Which of the above statement is / are correct?

A. i & ii

B. iii only

C. ii only

D. i only

Answer: A

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22. Which one of the following is used in blast furnace for drying air?

A. Activated charcoal

B. Silica gel

C. Alumina

D. Permutit

Answer: B

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23. Which is employed in the softening of hardwater to absorb Ca^{2+} and Mg^{2+} ions?

A. Alumina

B. Silica gel

C. Permutit

D. Charcoal

Answer: C

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24. The formula for permutit is .....

A. $CaAl_2Si_4O_{12}$

B. $CaAl_3SiO_2.\ xH_2O$

C. $Na_2Al_2Si_4O_{12}$

D. Na_2SiO_3

Answer: C

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25. Which one of the following is used to regenerate permutit in softening of hard water?

A. Common salt

B. Baking soda

C. Washing soda

D. Quick lime

Answer: A

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26. Which of the following is used to demineralise water?

A. Permutit

B. Common salt

C. Ion exchange resin

D. Charcoal

Answer: C

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27. Which of the following is used during world war as gas masks?

A. Permutit

B. Silica gel

C. Fuller's earth

D. Charcoal

Answer: D

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28. Which of the following is used in petroleum refining and refining of vegetable oils?

A. Charcoal

B. Silica gel

C. Permutit

D. Nickel

Answer: B

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29. The catalyst used in the hydrogenation of oils to obtain vanaspathi is .....

A. Iron

B. Molybdenum

C. Nickel

D. Copper

Answer: C

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30. The catalyst and promoter used in Haber's process are respectively .....

A. Mo, Fe

B. Fe, Mo

C. Pt, H_2S

D. Pt, V_2O_5

Answer: B

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31. Which method is used for identification, detection and estimation of many substances even if they are in micro quantities?

A. Lassaigne's test

B. Carius method

C. Kjeldhals method

D. Chromatography

Answer: D

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32. Which one of the following is used in the identification of Al^{3+} ion in $Al(OH)_3$?

A. Red litmus

B. Blue litmus

C. Phenol red

D. Sodium hydroxide

Answer: B

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33. Which ores are concentrated by froth floatation process?

A. Oxide ore

B. Carbonate ore

C. Sulphate ores

D. Sulphide ores

Answer: D

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34. In froth floatation process, the lighter ore particles are wetted by .....

A. Olive oil

B. Pine oil

C. Soap oil

D. Neem oil

Answer: B

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

A. Decomposition of acetaldehyde by I_2 catalysts

B. Hydrolysis of cane sugar with mineral acid

C. Ester hydrolysis with alkali

D. All the above

Answer: D

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36. 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. Oxidation of ammonia carried out in the presence of platinum gauze

D. Hydrolysis of cane sugar with mineral acid

Answer: D

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37. Which one of the following is an example for heterogeneous catalysis?

A. Decomposition of acetaldehyde by I_2, catalyst

B. Decomposition of H_2O_2 in the presence of Pt catalyst

C. Acid hydrolysis of ester

D. Hydrolysis of cane sugar with mineral acid

Answer: B

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38. Which one of the following is not an example for homogeneous catalysis?

A. Contact process of manufacture of H_2SO_4

B. Haber's process of manufacture of NH_3

C. Acid hydrolysis of ester

D. Freidel crafts reaction

Answer: C

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39. Consider the following statements:

(i) A catalyst needed in very small quantity

(ii) A catalyst can initiate a reaction

(iii) Catalyst are highly specific in nature

Which of the above statement is/are not correct?

A. i & iii

B. ii & iii

C. iii only

D. i only

Answer: D

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40. Consider the following statements:

(i) A solid catalyst will be more effective if it is taken in a finely divided form

(ii) A catalyst cannot initiate a reaction

(iii) For a chemical reaction, catalyst is needed in very large quantity

Which of the above statement is / are not correct?

A. i & ii

B. ii & iii

C. iii only

D. i & iii

Answer: A

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41. The catalyst poison in contact process of manufacture of SO_2 is .....

A. As_2O_3

B. H_2S

C. CO

D. As_2S_3

Answer: A

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42. In Haber's process of manufacture of ammonia, the Fe catalyst is poisoned by the pressure of .....

A. Mo

B. Co

C. H_2S

D. As_2O_3

Answer: C

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43. In the reaction $2H_2 + O_2 \rightarrow 2H_2O$ acts as a catalytic poison for Pt catalyst .

A. Co

B. Mo

C. As_2O_3

D. H_2S

Answer: A

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44. The negative catalyst in the decomposition of H_2O_2 is .....

A. Ethanol

B. Acetic acid

C. Ethanoic acid

D. Methanol

Answer: A

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45. Which one of the following is an example for an autocatalysis ?

A. $4CHCl_3 + 3O_2 \xrightarrow{C_2H_5OH} 4COCl_2 + 2H_2O + 2Cl_2$

B. $2H_2 + O_2 \xrightarrow{Co} 2H_2O$

C. $2H_2O_2 \xrightarrow{\text{Ethanol}} 2H_2O + O_2$

D. $2AsH_3 \rightarrow 2As + 3H_2$

Answer: D

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46. In the decomposition of hydrogen peroxide which acts as a negative catalyst?

A. Dilute acid

B. Dilute acid

C. a (or) b

D. Ethanol

Answer: C

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47. The energy required for the reactants to reach the activated complex is called .....

A. threshold energy

B. activation energy

C. internal energy

D. Gibbs free energy

Answer: B

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48. Which of the following is explained by intermediate compound formation theory?

A. Mechanism of friedel crafts reaction

B. Thermal decomposition of $KClO_3$ in the presence of MnO_2

C. Oxidation of HCl by air in the presence of $CuCl_2$

D. Manufacture of NH_2 by Haber's process

Answer: D

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49. Consider the following statements:

(i) Intermediate compound theory describes the specificity of a catalyst.

(ii) Intermediate compound theory explains the action of catalytic poison and activators.

(iii) Intermediate compound theory is unable to explain the mechanism of heterogeneous catalysed reactions.

Which of the above statement is / are not correct?

A. ii only

B. i & iii

C. iii only

D. i & ii

Answer: A

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50. Who explained the action of catalyst in adsorption theory?

A. Berzellius

B. Langmuir

C. Thomas Graham

D. Dalton

Answer: B

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51. Consider the following statements:

(i) The action of catalytic poison occurs when the poison blocks the active centres of the catalyst.

(ii) A promoter decreases the number of active centres on the surfaces.

(iii) Increase in the activity of a catalyst by increasing the surface area.

Which of the above statement is / are correct?

A. ii only

B. iii only

C. i & iii

D. ii & iii

Answer: C

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52. Which of the following catalyse the chemical reaction in living organism?

A. enzymes

B. protein

C. lipids

D. serum

Answer: A

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53. Which of the following enzyme catalyse the hydrolysis of starch into maltose?

A. maltase

B. invertase

C. diastase

D. zymase

Answer: C

View Text Solution

54. Which enzyme catalyses the conversion of glucose into ethanol?

A. maltase

B. invertase

C. diastase

D. zymase

Answer: D

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55. Which of the following act as catalyst in the oxidation of alcohol into acetic acid?

A. pepsin

B. diastase

C. micoderma

D. urease

Answer: C

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56. Which catalyst is used in the hydrolysis of urea?

A. micoderma

B. zymase

C. pepsin

D. urease

Answer: D

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57. Which of the following enzyme is present in soya beans?

A. urease

B. zymase

C. pepsin

D. lactase

Answer: A

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58. Consider the following statements:

(i) Enzymes are complex protein molecules with three dimensional structures.

(ii) Enzymes catalyse the chemical reaction in living organism.

(iii) Enzymes are not specific in catalytic action.

Which of the above statement is / are correct?

A. iii only

B. ii & iii

C. i & ii

D. i & iii

Answer: C

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59. Consider the following statements:

(i) Enzyme catalysed reaction has maximum rate at optimum temperature

(ii) Enzyme catalysis is highly specific in nature

(iii) Catalytic activity of enzyme is decreased by coenzymes or activators.

Which of the above statement is / are not correct?

A. iii only

B. i only

C. ii only

D. i & ii

Answer: A

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60. The temperature at which enzyme activity is high (or) maximum is called .....

A. critical temperature

B. optimum temperature

C. low temperature

D. high temperature

Answer: B

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61. Enzymes can be active in human body at a temperature of .....

A. $98^\circ F$

B. $105^\circ F$

C. $37^\circ F$

D. $50^\circ F$

Answer: A

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62. Consider the following statements:

(i) Zeolites are alumino silicates made of silicon and aluminium tetrahedra.

(ii) Zeolites carrying Nations are used as basic catalyst.

(iii) As silicon is tetravalent and aluminium is trivalent, the zeolite matrix carries extra positive

charge.

Which of the above statement is / are correct?

A. i & ii

B. i, ii & iii

C. iii only

D. ii only

Answer: A

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63. Which one of the following is used in petrochemical industry for cracking heavy hydrocarbon fractions into gasoline, diesel etc.?

A. permutit

B. zeolite

C. pepsin

D. protein

Answer: B

View Text Solution

64. Which one of the following is used as a catalyst in the conversion of Lindane to cyclohexane? (a)

A. Fe° / Pd°

B. Ni

C. Zn+HCl

D. $LiAlH_4$

Answer: A

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65. Which one of the following is used as catalyst in homogeneous and heterogeneous catalysis?

A. enzymes

B. zeolite

C. nano catalyst

D. coenzyme

Answer: C

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66. Who studied and analysed about colloids?

A. Berzelius

B. Thomas Graham

C. Langmuir

D. Robert Brown

Answer: B

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67. Which one of the following is lyophillic colloid?

A. Protein sol

B. Gold sol

C. Silver sol

D. Platinum sol

Answer: A

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68. Which one of the following is lyophobic colloid?

A. Protein sol

B. Starch sol

C. Gel

D. Gold sol

Answer: D

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69. An example of liquid aerosol is .....

A. Soda water

B. Milk

C. Fog

D. Inks

Answer: C

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70. Which of the following is an example of Emulsion?

A. mayonnaise

B. shaving cream

C. fumes

D. paint

Answer: A

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71. The dispersed phase and dispersion medium in smoke, fumes and dust are .....

A. gas, solid

B. solid, gas

C. gas, liquid

D. solid, liquid

Answer: B

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72. Inks, paints are considered as .....

A. liquid in solid

B. solid in liquid

C. gas in gas

D. solid in solid

Answer: B

View Text Solution

73. Which of the following is an example for gel?

A. Pumice stone

B. Pearls

C. Coloured glass

D. Butter

Answer: D

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74. Which one of the following is an example for solid sol?

A. Butter

B. Cheese

C. Pearls

D. Pumice stone

Answer: C

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75. Soda water is an example for .....

A. gel

B. emulsion

C. foam

D. sol

Answer: C

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76. Colloidal ink and graphite are prepared by .....

A. colloid mill

B. Bredig's arc

C. ultrasonic homogenizer

D. peptisation

Answer: A

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77. Which method is used to prepare metal sols?

A. ultrasonic dispersion

B. mechanical dispersion

C. Bredig's are method

D. peptisation

Answer: C

View Text Solution

78. Who prepared non aqueous inflammable liquids like Benzene and ether by Bredig's arc method?

A. George Bredig

B. Sved berg

C. Thomas Graham

D. Robert Brown

Answer: B

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79. Which method is used to prepare mercury colloid?

A. peptisation

B. mechanical dispersion

C. ultrasonic dispersion

D. Bredig's arc method

Answer: C

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80. Mercury sol is obtained by subjecting it to sound waves of frequency more than .....

A. 20 Hz

B. 20 kHz

C. 200 kHz

D. 2000 kHz

Answer: B

View Text Solution

81. The conversion of a precipitate into colloid is called .....

A. coagulation

B. hydrolysis

C. condensation

D. peptisation

Answer: D

View Text Solution

82. Gold sol is prepared by reduction of auric chloride using .....

A. water

B. HCHO

C. CH_3CHO

D. CH_3COOH

Answer: B

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83. Which method is suitable to prepare I_2 sol and Se sol?

A. Reduction

B. Hydrolysis

C. oxidation

D. peptisation

Answer: C

View Text Solution

84. Which condensation method is used to prepare sulphur sol?

A. Hydrolysis

B. Decomposition

C. Reduction

D. Peptisation

Answer: B

View Text Solution

85. Arsenic sulphide colloid is prepared by .....

A. hydrolysis

B. reduction

C. double decomposition

D. decomposition

Answer: C

View Text Solution

86. By which method phosphorous colloid can be prepared?

A. Decomposition

B. Exchange of solvent

C. Hydrolysis

D. Reduction

Answer: B

View Text Solution

87. Which one of the following is not used to purify colloids?

A. Dialysis

B. Peptisation

C. Electro dialysis

D. Ultrafilteration

Answer: B

View Text Solution

88. The process of conversion of colloidal solution into precipitate is known as .....

A. peptisation

B. dispersion

C. coagulation

D. decomposition

Answer: C

View Text Solution

89. Which one of the following is named collodion?

A. 4% solution of nitro cellulose in a mixture of alcohol and water

B. 40% solution of cellulose acetate in acetic acid.

C. agar-agar along with gel

D. semipermeable membrane

Answer: A

View Text Solution

90. Which of the following is the size of the colloidal particle?

A. $100\mu m$ diameter - $1000\mu m$ diameter

B. $1m\mu$ to 1 μm diameter

C. $1m\mu$ to $100\mu m$ diameter

D. $1\mu m$ to $1\mu m$ diameter

Answer: B

View Text Solution

91. Consider the following statements:

(i) Colloidal solutions are quite stable and are not affected by gravity

(ii) Colloids diffuse more readily through membranes

(iii) Colloidal solutions show colligative properties

Which of the above statement is / are correct?

A. i & iii

B. ii & iii

C. ii only

D. iii only

Answer: A

View Text Solution

92. The shape of tungstic acid W_3O_5 sol is .....

A. spherical

B. disc

C. plate like

D. rod like

Answer: D

View Text Solution

93. Which one of the following colloid has spherical shape?

A. AS_2S_3

B. $Fe(OH)_3$

C. W_3O_5

D. dust

Answer: A

View Text Solution

94. Tyndall effect is possible in colloid due to .....

A. absorption of light

B. adsorption of light

C. scattering of light

D. reflection of light

Answer: C

View Text Solution

95. Which one of the following does not show Tyndall effect and Brownian movement?

A. Milk

B. common salt solution

C. smoke

D. tungstic acid sol

Answer: B

View Text Solution

96. The migration of sol particles under the influence of electric field is called .....

A. electro osmosis

B. electro dialysis

C. electrophoresis

D. dialysis

Answer: C

View Text Solution

97. Which one of the following is used for detection of pressure of charge on sol particles?

A. Cataphoresis

B. Electro dialysis

C. Dialysis

D. Ultrafilteration

Answer: A

View Text Solution

98. Which of the following is positively charged colloid?

A. haemoglobin

B. starch

C. clay

D. As_2S_3

Answer: A

View Text Solution

99. Which one of the following is a positively charged colloid?

A. Ag

B. AU

C. Basic dyes

D. Clay

Answer: C

View Text Solution

100. Which one of the following is a negatively charged colloid?

A. Pt

B. $Al(OH)_3$

C. $Fe(OH)_3$

D. Basic dyes

Answer: A

View Text Solution

101. Which one of the following is a negatively charged colloid?

A. Ferric hydroxide

B. Clay

C. Basic dyes

D. Haemoglobin

Answer: B

View Text Solution

102. The movement of dispersion medium under the influence of electric potential is called .....

A. Electrophoresis

B. Cataphoresis

C. Electro osmosis

D. Electro dialysis

Answer: C

View Text Solution

103. Which one of the following is added to gold sol to protect it?

A. Gelatine sol

B. Gum

C. Starch

D. Basic dye

Answer: A

View Text Solution

104. Consider the following statements.

(i) Smaller the gold number, greater the protective power

(ii) Greater the gold number, greater the protective power

(iii) Colloidal sols with opposite charges are mixed, mutual coagulation takes place.

Which of the above statement is / are not correct?

A. i only

B. i & iii

C. i only

D. ii & iii

Answer: C

View Text Solution

105. Which one of the following can act as emulsifier?

A. glue

B. dye

C. water

D. starch

Answer: A

View Text Solution

106. Which one of the following is not used to identify the types of emulsion?

A. dye test

B. viscosity test

C. conductivity test

D. Tollen's test

Answer: D

View Text Solution

107. By adding which one of the following oil in water emulsion containing potassium soap can be converted into water in oil emulsion?

A. $AlCl_3$

B. $NaCl$

C. KCl

D. C_6H_5Cl

Answer: A

View Text Solution

108. Which of the following colloid is used as a medicine for stomach troubles?

A. colloidal Au

B. colloidal Ca

C. milk of magnesia

D. silver sol

Answer: C

View Text Solution

109. Which one of the following is used in the purification of drinking water?

A. silver sol protected by gelatine

B. milk of magnesia

C. Alum containing Al^{3+}

D. Argyrol

Answer: C

View Text Solution

110. Which of the following is used as tonics?

A. milk of magnesia

B. Argyrol

C. colloidal Au & colloidal Ca

D. Alum

Answer: C

View Text Solution

111. Which one of the following is used in tanning of leather?

A. chromium salt

B. colloidal Au

C. Argyrol

D. $Fe(OH)_3$

Answer: A

View Text Solution

112. Carbon dust in air is solidified by .....

A. cottrell's precipitator

B. colloidal mill

C. Bredig's arc

D. peptisation

Answer: A

View Text Solution

113. Which of the following voltage is used in cottrell's precipitator?

A. 5000 V

B. 50,000 V

C. 1,000V

D. 10,000V

Answer: B

View Text Solution

114. The blue colour of the sky is due to .....

A. coagulation

B. peptisation

C. Tyndall effect

D. Brownian movement

Answer: C

View Text Solution

115. Which one of the following is used to distinguish Natural honey and artificial honey?

A. Ammoniacal $AgNO_3$

B. Fehling's solution

C. Arsenic sulphide sol

D. gelatin

Answer: A

View Text Solution

116. Which one of the following is the catalyst poison in Haber's process?

A. AS_2S_3

B. AS_2O_3

C. Co

D. H_2S

Answer: D

View Text Solution

117. Which one of the following is an example for water in oil emulsion?

A. Milk

B. Vanishing cream

C. Butter

D. Soap

Answer: C

View Text Solution

118. Which of the following is contributed towards the extra stability of lyophillic colloid?

A. Hydration

B. Charge

C. Colour

D. Tyndall effect

Answer: A

View Text Solution

119. A catalyst is a substance which

A. increases the equilibrium concentration of the product

B. changes the equilibrium constant of the reaction

C. shortens the time to reach equilibrium

D. supplies energy to the reaction

Answer: C

View Text Solution

120. The ability of an ion to bring about coagulation of a given colloid depends upon .....

A. its size

B. magnitude of its charge

C. the sign of its charge

D. both the magnitude and sign of the charge

Answer: D

View Text Solution

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

A. It is a reversible process

B. It requires less heat of adsorption

C. It requires activation energy

D. It take place at low temperature

Answer: C

View Text Solution

122. Which is not a colloid?

A. Chlorophyll

B. Egg

C. Ruby glass

D. Milk

Answer: A

View Text Solution

123. Which of the following electrolytes is most effective in the coagulation of gold sol?

A. $NaNO_3$

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

C. Na_3PO_4

D. $MgCl_2$

Answer: B

View Text Solution

124. Gold number gives.....

A. the amount of gold present in the colloid

B. the amount of gold required to break the colloid

C. the amount of gold required to protect the colloid

D. the measure of protective power of a lyophillic colloid

Answer: D

View Text Solution

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

A. N_2

B. SO_2

C. H_2

D. O_2

Answer: B

View Text Solution

126. Starch dispersed in hot water is an example of .....

A. emulsion

B. hydrophobic sol

C. lyophilic sol

D. associated colloid

Answer: C

View Text Solution

127. Which one is an example of gel?

A. soap

B. cheese

C. milk

D. fog

Answer: B

View Text Solution

128. The random, zig-zag motion of colloidal particles in the dispersion medium is referred to Electrophoresis as.....

A. Electrophoresis

B. Brownian movement

C. Tyndall effect

D. Electro osmosis

Answer: B

View Text Solution

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

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

B. K_2CrO_4

C. KBr

D. K_2SO_4

Answer: C

View Text Solution

130. Gelatin is mostly used in making icecream in order to.....

A. prevent making of colloid

B. to stabilize the colloid and to prevent the crystallization

C. to stabilise the mixture

D. to enrich the aroma

Answer: B

View Text Solution

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

A. smoke

B. ink

C. air

D. coffee

Answer: C

View Text Solution

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

A. HCOOH

B. HCHO

C. CH_3COOH

D. CH_3CHO

Answer: B

View Text Solution

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

A. ferric chloride seal the blood cells

B. blood starts flowing in ohter direction

C. blood is coagulated and blood vessel is sealed

D. blood is peptised

Answer: C

View Text Solution

134. Delta at the rivers are formed due to ....

A. peptisation

B. coagulation

C. hydrolysis

D. precipitation

Answer: B

View Text Solution

135. Alum purifies muddy water by

A. dialysis

B. adsorption

C. coagulation

D. forming a true solution

Answer: C

View Text Solution

136. Reactions of zeolite catalysts depend on.....

A. pores

B. apertures

C. size of cavity

D. all of these

Answer: D

View Text Solution

137. chemisorption.....

A. increases with increase in temperature

B. decreases with increase in temperature

C. remains unaffected by the change of temperature

D. first increases and then decreases.

Answer: D

View Text Solution

138. Adsorption is always ....

A. endothermic

B. exothermic

C. Iso thermic

D. either a (or) b

Answer: A

View Text Solution

139. Which one of the following can be explained by the adsorption theory?

A. Homogeneous catalysis

B. Acid-base catalysis

C. Heterogeneous catalysis

D. Enzyme catalysis

Answer: C

View Text Solution

140. Physical adsorption is inversly proportional to ....

A. volume

B. concentration

C. temperature

D. all of these

Answer: C

View Text Solution

141. Noble gases are adsorbed by.....

A. anhydrous $CaCl_2$

B. $Fe(OH)_3$

C. Conc.H_2SO_4

D. activated charcoal

Answer: D

View Text Solution

142. Animal charcoal is used in decolourising agent in the manufacture of sugar because it is a good .....

A. adsorbate

B. adsorbent

C. oxidising agent

D. dehydrating agent

Answer: A

View Text Solution

143. Gold number is associated only with.....

A. lyophobic colloids

B. lyophilic colloids

C. both lyophobic and lyophilic colloids

D. Au in water

Answer: B

View Text Solution

144. Which of the following forms a colloidal solution with water?

A. NaCl

B. Glucose

C. Starch

D. Barium sulphate

Answer: C

View Text Solution

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

A. Hydrogenation of oil

B. manufacture of NH_3 by Haber's process

C. manufacture of sulphuric acid by contact process

D. hydrolysis of sucrose in the presence of dilute hydrochloric acid

Answer: D

View Text Solution

146. Which of the following does not involve coagulation?

A. peptisation

B. formation of delta regions

C. treatment of drinking water by potash alum

D. clotting of blood by the use of ferric chloride

Answer: A

View Text Solution

147. 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

View Text Solution

148. Which of the following statement is incorrect regarding physisorption?

A. It occurs because of Van der Waals forces

B. more easily liquefiable gases are adsorbed easily

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

D. enthalpy of adsorption is low and positive

Answer: D

View Text Solution

149. Rate of physical adsorption increase with .....

A. increase in temperature

B. decrease in pressure

C. decrease in temperature

D. decrease in surface are

Answer: C

View Text Solution

150. Gold numbers of protective colloids, A, B, C and D are respectively 0.50, 0.01, 0.10 and 0.005. The correct order of the stability of colloids is .....

A. $B < D < A < C$

B. $D < A < C < B$

C. $C < B < D < A$

D. $A < C < B < D$

Answer: D

View Text Solution

Additional Questions Fill In The Blanks

1. The surface of separation of the two phases where the concentration of adsorbed molecule is high is known as .....

View Text Solution

2. In adsorption, if the concentration of a substance in the interface is high, it is called .....

View Text Solution

3. The process of removing a adsorbed substance from the surface is called .....

View Text Solution

4. Adsorption is always accompanied by decrease in .....

View Text Solution

5. A term ..... is used for sorption of gases on metal surfaces

View Text Solution

6. M.C. Bain introduced a term ..... to represent the simultaneous adsorption and absorption.

View Text Solution

7. In chemical adsorption, gas molecules are held to the surface by formation of chemical bond and nearly ..... is given out as heat of adsorption

View Text Solution

8. In physical adsorption ..... exist between adsorbent and adsorbate

View Text Solution

9. Heat of adsorption is low hence physical adsorption occurs at ....

View Text Solution

10. ..... involves the formation of activated complex with appreciable activation energy.

View Text Solution

11. Adsorption occurs at fixed sites called .....

View Text Solution

12. Gases like NH_3, SO_3 and CO_2 are ..... as have greater Van der Waals force of attraction.

View Text Solution

13. ..... gases like H_2, N_2, O_2 have low critical temperature and ..... slowly

View Text Solution

14. A plot between the amount of adsorbate adsorbed and pressure or concentration of

adsorbate at constant temperature is called .....

View Text Solution

15. Freundlich adsorption isothermal equation is applicable fo adsorption of .....

View Text Solution

16. During World War I ..... gas mask was employed

View Text Solution

17. ..... is used to create high vaccum in vessels.

View Text Solution

18. In blast furnace ..... is used for drying air

View Text Solution

19. For dehydration and also purification of gases like CO_2, N_2, Cl_2, O_2 and He, ... and ..... are employed.

View Text Solution

20. ..... is employed in the softening of hard water to adsorb Ca^{2+} and Mg^{2+} ions

View Text Solution

21. In the process of softening of hard water, exhausted permutit is regenerated by adding a solution of .....

View Text Solution

22. ..... are used to demineralise water.

View Text Solution

23. ..... and ..... are used in petroleum refining and refining of vegetable oil.

View Text Solution

24. ..... is used to decolourising agent in manufacture of sugar from molasses.

View Text Solution

25. In forth floation process, the sulphide are particles are wetted by .....

View Text Solution

26. ..... is defined as a substance which alters the rate of a chemical reaction without itself undergoing chemical change.

View Text Solution

27. The decomposition of acetaldehyde by I_2 catalyst is an example of ..... catalysis.

View Text Solution

28. Manufacture of sulphuric acid by contact process is an example of ..... catalysis.

View Text Solution

29. Friedel crafts reaction is an example of ..... catalysis.

View Text Solution

30. The substances increases the activity of a catalyst are called .....

View Text Solution

31. ..... or ..... used as promoter for iron in Haber's process

View Text Solution

32. ..... destroys the activity of platinum in contact process

View Text Solution

33. In th reaction $CH_3COOC_2H_5 + H_2O \rightarrow CH_3COOH + C_2H_5OH$ ..... is act as auto catalyst .

View Text Solution

34. The decomposition of H_2O_2 rate is decreased by .....

View Text Solution

35. As ..... is lowered in the presence of catalyst, more molecules take part in the reaction and hence the rate of the reaction increases.

View Text Solution

36. The mechanism of friedel crafts reaction is explained by ..... theory.

View Text Solution

37. The catalyst used for the oxidation of HCl by air is .....

View Text Solution

38. Thermal decomposition of KC10, in the presence of ..... follows ..... theory.

View Text Solution

39. Intermediate compound formation theory is unable to explain the mechanism of .....

View Text Solution

40. Hydrogenation of ethylene in the presence of nickel catalyst follows ..... theory.

View Text Solution

41. ..... are complex protein molecules and catalyse the chemical reaction in living organism.

View Text Solution

42. The enzyme ..... hydrolyses starch into maltose.

View Text Solution

43. The enzyme ..... oxidises alcohol into acetic acid.

View Text Solution

44. ..... inhibits the action of bacteria and used for curing pneumonia.

View Text Solution

45. ..... are microporous, hydrated alumino silicates.

View Text Solution

46. Zeolites carrying ..... are used as basic catalysts

View Text Solution

View Text Solution

47. Like heterogeneous catalyst ..... can be recovered and recycled.

View Text Solution

48. Sols of gold, silver, platinum and copper are examples of .....

View Text Solution

49. Sols of protein and starch are examples of .....

View Text Solution

50. A liquid in liquid colloid is called .....

View Text Solution

51. Pearls, opals and Ruby red glass are belong the colloid named .....

View Text Solution

52. Rubber foms colloidal solution with .....

View Text Solution

53. Colloidal solutions of ink and graphite are prepared by ..... method.

View Text Solution

54. A brown colloidal solution of platinum was prepared by ..... in 1898.

View Text Solution

55. ..... is added as an stabilising agent for making platinum colloid.

View Text Solution

56. Metal hydroxide is added as an ..... for making noble metal sols.

View Text Solution

57. Claus obtained ..... by subjecting ..... to high frequency ultrasonic vibrations.

View Text Solution

58. Gold sol is prepared by reduction of auric chloride using.....

View Text Solution

59. Arsenic sulphide colloid can be prepared by ..... method.

View Text Solution

60. I_2 sol is obtained from HIO_3 by ..... method.

View Text Solution

61. The process of conversion of colloidal solution into precipitate is called .....

View Text Solution

62. In the dialysis of kidney, recycling of patient's blood is done through semipermeable tube in an ..... solution

View Text Solution

63. Collodion is 4% solution of ..... in a mixture of .....

View Text Solution

64. The size of colloidal particles ranges from .....

View Text Solution

65. The shape of blue gold sol (or) $Fe(OH)_3$ sol is .....

View Text Solution

66. Pollen grains suspended in water showed .....

View Text Solution

67. The flocculation and setting down of sol particles is called .....

View Text Solution

68. When the valency of ion is high ..... power is increased in colloids.

View Text Solution

69. The smaller the ..... value, greater will be precipitation of colloids.

View Text Solution

70. ..... is added to gold sol to protect it.

View Text Solution

71. ..... introduced the term gold number as a measure of protecting power of a colloid.

View Text Solution

View Text Solution

72. An oil in watrer emulsion containing potassium soap as emulsifying agent can be converted into water in oild emulsion by adding ..... or .....

View Text Solution

73. Synthetic polymers like polystyrene, silicones and PVC, are .....

View Text Solution

74. ..... colloid is used as eye lotion.

View Text Solution

75. ..... protected by gelatin is known as Argyrol.

View Text Solution

76. ..... salts are used in tanning of leather.

View Text Solution

77. Natural honey is distinguished artificial honey by adding.....

View Text Solution

Additional Questions Match The Column

1. Match the column I & II using the code

1.	Column I	Column II
A	Charcoal	1. Nitrogen
B	Silica gel	2. Hydrogen
C	Mica	3. Water
D	Nickel	4. Ammonia

Code:	A	B	C	D
(*a*)	4	3	1	2
(*b*)	3	2	4	1
(*c*)	2	1	3	4
(*d*)	1	4	2	3

View Text Solution

2. Match the column I & II using the code

	Column I		Column II
A	M.C. Brain	1	Adsorption theory
B	T. Graham	2	Brownian movement
C	Langmuir	3	Sorption
D	Robert Brown	4	Occlusion

Code:	A	B	C	D
(*a*)	1	2	3	4
(*b*)	4	3	2	1
(*c*)	3	4	1	2
(*d*)	2	1	4	3
Ans.(*c*)	3	4	1	2

View Text Solution

3. Match the column I & II using the code

	Column I	Column II
A.	Gas mask	1. demineralise water
B.	Permutit	2. petroleum refining
C.	Ion exchange resins	3. softening of hard water
D.	Silica gel	4. Charcoal gas

Code:	A	B	C	D
(*a*)	4	3	1	2
(*b*)	3	4	2	1
(*c*)	1	2	3	4
(*d*)	2	1	4	3

View Text Solution

4. Match the column I & II using the code

Column I	Column II
A. Drying air	1. Animal charcoal
B. Purification of CO_2	2. Silica gel
C. Adsorption of Ca^{2+} and Mg^{2+}	3. Alumina
D. Decolouring agent	4. Permutit

Code:	A	B	C	D
(*a*)	2	3	4	1
(*b*)	1	2	3	4
(*c*)	4	1	2	3
(*d*)	3	4	1	2

View Text Solution

5. Match the column I & II using the code

Column I	Column II
A. Haber's process	1. Anhydrous $AlCl_3$
B. Vanaspathi preparation	2. Pt (or) V_2O_5
C. Contact process	3. Fe / Mo
D. Freidel crafts reaction	4. Nickel

View Text Solution

6. Match the column I & II using the code

Column I	Column II
A. Positive catalyst	1. Glycerol
B. Negative Catalyst	2. Molybdenum
C. Catalyst Poison	3. MnO_2
D. Promoter	4. H_2S

View Text Solution

7. Match the column I & II using the code

Column I	Column II
A. Catalyst poison for Pt	1. H_2S
B. Catalyst poison for Fe	2. Glycerol
C. Negative catalyst for decomposition of H_2O_2	3. Ethanol
D. Negative catalyst for oxidation of $CHCl_3$	4. CO

Code:	A	B	C	D
(a)	4	1	2	3
(b)	1	2	3	4
(c)	3	4	1	2
(d)	2	3	4	1

View Text Solution

8. Match the column I & II using the code

Column I	Column II
A. Oxidation of HCl by air	1. Nickel
B. Formation of water	2. MnO_2
C. Decomposition of $KClO_3$	3. Copper
D. Hydrogenation of C_2H_4	4. $CuCl_2$

View Text Solution

9. Match the column I & II using the code

Column I		Column II	
A.	Liquid Aerosol	1.	Soda water
B.	Solid Aerosol	2.	Fog
C.	Foam	3.	Milk
D.	Emulsion	4.	Smoke

Code:	A	B	C	D
(a)	2	4	1	3
(b)	4	3	2	1
(c)	1	2	3	4
(d)	3	1	4	2

View Text Solution

10. Match the column I & II using the code

Column I	Column II
A. Sol	1. Butter, cheese
B. Solid foam	2. Pearls, opals
C. Gel	3. Pumice stone, rubber band
D. Solid sol	4. Ink, paint

View Text Solution

11. Match the column I & II using the code

Column I	Column II
A. Solid in gas	1. Foam
B. Gas in liquid	2. Gel
C. Liquid in liquid	3. Solid Aerosol
D. Liquid in solid	4. Emulsion

Code:	A	B	C	D
(*a*)	1	2	3	4
(*b*)	4	3	2	1
(*c*)	3	1	4	2
(*d*)	2	4	1	3

View Text Solution

12. Match the column I & II using the code

Column I	Column II
A. Penicillin	1. Stomach trouble
B. Colloidal gold	2. Eye lotion
C. Milk of magnesia	3. Tonic
D. Argyrol	4. Antibodies

View Text Solution

13. Match the column I & II using the code

Column I	Column II
A. Colloidal graphite	1. Bredig's arc method
B. Colloidal gold	2. Ultrasonic dispersion
C. Colloidal AgCl	3. Mechanical dispersion
D. Colloidal mercury	4. Peptisation

View Text Solution

14. Match the column I & II using the code

Column I		Column II	
A	Physical adsorption	1.	Sorption of gases on metal surface
B	Chemical adsorption	2.	Simultaneous adsorption and absorption
C	Sorption	3.	Transfer of electrons
D	Occulsion	4.	Van der Waals force of attraction

Code:	A	B	C	D
(a)	1	2	3	4
(b)	4	3	2	1
(c)	3	4	1	2
(a)	2	1	4	3

View Text Solution

15. Match the column I & II using the code

Column I		Column II	
A.	Phase transfer catalysis	1.	Thermal decomposition of $KClO_3$
B.	Enzyme catalysis	2.	Reaction of RCl with NaCN
C.	Homogeneous catalysis	3.	Hydrogeneration of ethyleno
D.	Heterogeneous catalysis	4.	Conversion of glucose into ethanol

Code:	A	B	C	D
(a)	2	4	1	3
(b)	4	3	2	1
(c)	1	2	3	4
(d)	3	1	4	2

View Text Solution

16. Match the column I & II using the code

Column I	Column II
A. $CH_3CHO \rightarrow CH_4+CO$	1. pt
B. $C_{12}H_{22}O_{11}+H_2O \rightarrow C_6H_{12}O_6 + C_6H_{12}O_6$	2. Fe
C. $N_2 + 3H_2 \rightarrow 2NH_3$	3. I_2
D. $4NH_3 + 5O_2 \rightarrow 4NO+6H_2O$	4. H_2SO_4

Code:	A	B	C	D
(a)	4	3	1	2
(b)	3	4	2	1
(c)	2	1	4	3
(d)	1	2	3	4

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17. Match the column I & II using the code

Column I	Column II
A. Ni	1. $4NH_3+5O_2 \rightarrow 4NO + 6H_2O$
B. Pt	2. $C_6H_6 + CH_3COCl \rightarrow C_6H_6COCH_3 + HCl$
C. Anhydrous $AlCl_3$	3. $2SO_2 + O_2 \rightarrow 2SO_3$
D. V_2O_5	4. $CH_2 = CH_2 \rightarrow CH_3 - CH_3$

Code:	A	B	C	D
(a)	4	1	2	3
(b)	3	4	1	2
(c)	1	2	3	4
(d)	2	3	4	1

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18. Match the column I & II using the code

Column I	Column II
A. Pepsin	1. Starch into maltose
B. Diastase	2. Alcohol into acetic acid
C. Zymase	3. Hydrolysis of peptide
D. Micoderma aceti	4. Glucose into ethanol

Code:	A	B	C	D
(a)	3	1	4	2
(b)	4	3	2	1
(c)	1	2	3	4
(d)	2	4	1	3

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Additional Questions Assertion And Reason

1. Assertion (A) : Absorption is a bulk phenomenon.

Reason (R): The absorbed molecules are distributed throughout the absorbent.

A. Both A and R are correct and R is the correct explanation of A.

B. A is correct but R is wrong.

C. A is wrong but R is correct.

D. Both A and R are wrong.

Answer: A

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2. Assertion (A) : Adsorption is a spontaneous process.

Reason (R) : Adsorption is always accompanied by decrease in free energy. When molecules are adsorbed, there is always a decrease in randomness of the molecules.

A. Both A and R are correct and R is the correct explanation of A.

B. Both A and R are correct but R is not correct explanation of A.

C. Both A and R are wrong.

D. A is correct but R is wrong.

Answer: A

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3. Assertion (A) : Chemical adsorption is an exothermic process.

Reason (R) : In chemical adsorption, gas molecules are held to the surface by formation of chemical bonds. Since strong bond is formed, nearly 400kJ/mole is given out as heat adsorption.

A. Both A and R are correct and R is the correct explanation of A.

B. Both A and R are correct but R is not correct explanation of A.

C. Both A and R are wrong.

D. A is correct but R is wrong.

Answer: A

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4. Assertion (A): Physical adsorption occurs at low temperature.

Reason (R) : In physical adsorption, weak Van der Waals force of attraction exist. Other weak forces exist in physical adsorption are dipole-dipole interaction and dispersion forces. As these forces are weak, heat of adsorption is low.

A. Both A and R are correct but R is not correct explanation of A.

B. Both A and R are correct and R is the correct explanation of A.

C. Both A and R are wrong.

D. A is correct but R is wrong.

Answer: B

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5. Assertion (A): Platinised asbestos is a better adsorbent than platinum block.

Reason (R): Higher the surface area, higher is the amount adsorbed. In platinum coated asbestos the surface area is more and so it act as a better adsorbent.

A. Both A and R are correct and R is the correct explanation of A.

B. Both A and R are wrong.

C. A is correct but R is wrong.

D. A is wrong but R is correct.

Answer: A

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6. Assertion (A): Gases like $SO_2$2, NH_3 and CO_(2) $arereadilyads$ or $bed.\ Reason(R)$: SO_(2), NH_(3) and CO_(2)` are easily liquefiable as have greater van der Waal's forces of attraction and adsorbed readily.

A. Both A and R are correct and R is the correct explanation of A.

B. Both A and R are wrong.

C. A is correct but R is wrong.

D. A is wrong but R is correct.

Answer: A

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7. Assertion (A) : Permanent gases like H_2, N_2 and O_2 cannot be adsorbed readily.

Reason (R) : Permanent gases having low critical temperature and adsorbed slowly.

A. Both A and R are wrong.

B. A is correct and R is the correct explanation of

A.

C. A is wrong but R is correct.

D. A is correct but R is wrong.

Answer: B

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8. Assertion (A) : Chromatography is a very effective method and used for identification, detection and estimation of micro quantities of many substances.

Reason (R): Chromatography technique is applied

for separation and detection of components in a mixture it is mainly based on adsorption of components on the surface of adsorbents.

A. Both A and R are correct and R is the correct explanation of A.

B. Both A and R are correct.

C. A is correct but R is wrong.

D. A is wrong but R is correct.

Answer: A

View Text Solution

9. Assertion (A): Ester hydrolysis of acid (or) alkali catalyst is an example of homogeneous catalysis. Reason (R) : Ester, H_2O acid (or) alkali and the products are in liquid form.

A. Both A and R are correct but R is the correct explanation of A.

B. Both A and R are wrong.

C. A is correct but R is wrong.

D. A is wrong but R is correct.

Answer: A

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10. Assertion (A): The manufacture of sulphuric acid by contact process is an example of heterogeneous catalysis.

Reason (R) : The catalyst $Pt(\text{ or }) V_2O_5$ reactants and products are in different phases in contact process.

A. Both A and R are correct and R is the correct explanation of A.

B. Both A and R are correct but R is not correct explanation of A.

C. Both A and R are wrong.

D. A is wrong but R is correct.

Answer: A

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11. Assertion (A): Acid hydrolysis of ethylacetate by water to produce acetic acid and ethanol is an example of auto catalysis.

Reason (R) : In acid hydrolysis of ester, the product acetic acid act as catalyst and this process is called autocatalysis.

A. Both A and R are correct and R is the correct explanation of A.

B. Both A and R are wrong.

C. A is correct but R is wrong.

D. A is wrong but R is correct.

Answer: A

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12. Assertion (A): Effective and efficient conversion is the special characteristic of enzyme catalysed reactions.

Reason (R): An enzyme may transform a million molecules of reactants to products in a minute.

A. Both A and R are correct and R is the correct explanation of A.

B. Both A and R are correct but R is not correct explanation of A.

C. A is correct but R is wrong.

D. A is wrong but R is correct.

Answer: A

View Text Solution

13. Assertion (A): Lyophillic colloids will not get precipitated easily.

Reason (R) : In lyophillic colloids, definite attractive forces exists between dispersion medium and dispersed phase and they are more stable.

A. Both A and R are correct and R is the correct explanation of A.

B. Both A and R are correct but R is not correct explanation of A.

C. Both A and R are wrong.

D. A is correct but R is wrong.

Answer: A

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14. Assertion (A): Lyophobic colloids like sols of gold will precipitate readily.

Reason (R) : In lyophobic colloids, no attractive force exists between the dispersed phase and dispersion medium and are less stable.

A. Both A and R are correct and R is the correct explanation of A.

B. Both A and R are correct but R is not correct explanation of A.

C. Both A and R are correct.

D. A is correct but R is wrong.

Answer: A

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15. Assertion (A): Iron colloid cannot be prepared by Bredig's are method.

Reason (R): Iron cannot react with alkali hydroxide stabilising agent added in water.

A. Both A and R are correct and R is the correct explanation of A.

B. A is correct but R is wrong.

C. A is wrong but R is correct.

D. Both A and R are wrong.

Answer: A

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Additional Questions Odd One Out

1. Find the odd one out .

$HeNe, O_2, N_2, Pt$

View Text Solution

2. Find the odd one out .

$SO_2, NH_3, NaCl,$ Silica gel

View Text Solution

3. Find the odd one out .

Silica gel , Pt , Ag , Pd , NH_3

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4. Find the odd one out .

Coconut charcoal, silica gel, mica, SO_2, Animal charcoal

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5. Find the odd one out .

Mica, Nickel, Charcoal, Tungsten, Ethyl alcohol vapours

View Text Solution

6. Find the odd one out .

Pt , Glycerol , MnO_2 , Ni , I_2

View Text Solution

7. Find the odd one out .

Fe , Anhydrous $AlCl_3$, V_2O_5, Pt , Ethyl alcohol

View Text Solution

8. Find the odd one out .

Decomposion of acetaldehyde by I_2 , Decomposition

of H_2O_2 by Pt , Ester hydrolysis with acid , Hydrolysis of cane sugar .

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9. Find the odd one out .

Friedel crafts reaction, Haber's process, Hydrolysis of cane sugar, Contact process.

View Text Solution

10. Find the odd one out .

Pepsin, Zymase, Maltase, Diastase, Maltose, Urease.

View Text Solution

11. Find the odd one out .

Pt , Ni , Fe° / Pd° , Fe/Mo, Sn/HCl

View Text Solution

12. Find the odd one out .

Milk, coffee, smoke, common salt solution, dust.

View Text Solution

13. Find the odd one out .

Soda water, Butter, Starch solution, Cheese, Cream.

View Text Solution

14. Find the odd one out .

Ink, Milk, Cream, Mayonnaise.

View Text Solution

15. Find the odd one out .

Pearls, Opals, Coloured glass, Alloys, Pumice stone.

View Text Solution

16. Find the odd one out .

Smoke, Froth, Fumes, Dust, Air pollutants.

View Text Solution

17. Find the odd one out .

Pumice stone, Foam, Milk, Rubber band.

View Text Solution

18. Find the odd one out .

Mechanical dispersion, Bredig's arc method, Peptisation, Double decomposition, Ultrasonic dispersion.

View Text Solution

19. Find the odd one out .

Oxidation, Peptisation, Reduction, Decomposition, Hydrolysis.

View Text Solution

20. Find the odd one out .

Dialysis, electrophoresis, Ultrafilteration, Electrodialysis.

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Additional Questions 2 Marks Questions

1. Define (a) Adsorbent (b) Adsorbate with an example.

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2. Define (i) Interface (ii) Desorption

View Text Solution

3. What is adsorption? What is meant by positive and negative adsorption?

View Text Solution

4. Define chemical adsorption? Give example.

View Text Solution

5. Chemical adsorption is an exothermic process. Justify this statement.

View Text Solution

6. Why physical adsorption take place at low temperature?

View Text Solution

7. What are the forces exist in physical adsorption?

View Text Solution

8. What is physical adsorption? Give example.

View Text Solution

9. Finely divided Nickel is a better adsorbent than Nickel crystal.

View Text Solution

10. NH_3, CO_2 are readily adsorbed where as H_2, N_2 are slowly adsorbed. Give reason.

View Text Solution

11. What is meant by adsorption isotherm?

View Text Solution

12. Mention Freundlinch adsorption isothermal equation.

View Text Solution

13. What are the limitations of Freundlich adsorption isotherm?

View Text Solution

View Text Solution

14. How is adsorption applied in the decolourisation of sugar?

View Text Solution

15. What is chromatography?

View Text Solution

16. Explain the application of adsorption in qualitative analysis with an example.

View Text Solution

17. Define catalyst. Give example.

View Text Solution

18. What is homogeneous catalysis? Give example.

View Text Solution

19. What is heterogeneous catalysis? Give example.

View Text Solution

20. What are promoters? Explain with example.

View Text Solution

21. What is meant by catalyst poison?

View Text Solution

22. Which is the catalyst and catalyst poison in Haber's process?

View Text Solution

23. In the reaction $2H_2 + O_2 \rightarrow 2H_2O$, which is the catalyst and catalyst poison ?

View Text Solution

24. Explain the relation between activation energy and the rate of the reaction using catalyst.

View Text Solution

25. What are the merits and limitations of the intermediate compound theory?

View Text Solution

26. What are active centres?

View Text Solution

27. Enzyme catalysis are more effective and efficient than ordinary catalysis. Prove this statement.

View Text Solution

28. Enzyme catalysis is highly specific in nature. Justify this statement.

View Text Solution

29. Enzyme catalysed reaction has maximum rate at optimum temperature. Prove it.

View Text Solution

30. What are the types of colloids based on dispersion medium?

View Text Solution

31. Explain about (i) Liquid aerosol (ii) solid aerosol with example.

View Text Solution

32. Explain oxidation method of preparation of colloids with two examples.

View Text Solution

33. Explain the method of preparation of gold sol by reduction method.

View Text Solution

34. How would you prepare ferric hydroxide sol by hydrolysis method?

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35. How would you prepare colloid by the exchange of solvent method?

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36. Why colloids are to be purified? If not what will happen?

View Text Solution

37. How is human kidney dialysis take place?

View Text Solution

38. Write a note about Helmoholtz double layer.

View Text Solution

39. What is meant by gold number?

View Text Solution

40. Potato starch is less stable than gelatin. Why?

View Text Solution

41. Write a note about Cortrell's precipitator.

View Text Solution

42. Explain about (i) blue colour of the sky (ii) formation of delta.

View Text Solution

43. Distinguish between the meaning of the terms adsorption and absorption. Give one example each.

View Text Solution

44. Explain the following term giving a suitable example, emulsification.

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45. What is the reason for the stability of colloidal sols?

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46. Dialysis is a method of purification of sols. But prolonged dialysis of the sol makes it unstable. Why?

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47. Why the sun looks red at the time of setting? Explain on the basis of colloidal properties.

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48. What are emulsions? What are their different types? Give one example of each type.

View Text Solution

49. How does chemical adsorption of a gas on a solid vary with temperature?

View Text Solution

50. What are lyophilic and lyophobic sols? Give one example of each type. Why are hydrophobic sols easily coagulated?

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Additional Questions 3 Marks Questions

1. What are the characteristics of adsorption?

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2. Explain graphical representation of chemical adsorption and physical adsorption.

View Text Solution

3. Write any 3 applications of adsorption.

View Text Solution

4. Explain the function of permutit in the softening of hard water.

View Text Solution

5. Explain about the application of ion exchange resins in adsorption.

View Text Solution

6. What is catalysis? Explain with two examples.

View Text Solution

7. In the following fields, how adsorption is applied?

(i) Medicine (ii) Metallurgy (iii) Mordant & Dyes (iv) indicators

View Text Solution

8. Differentiate homogeneous and heterogeneous catalysis.

View Text Solution

9. Give three examples for homogeneous catalysis.

View Text Solution

10. Give three examples for heterogeneous catalysis.

View Text Solution

11. What is auto catalysis? Give two examples.

View Text Solution

12. What is negative catalysis? Explain with example.

View Text Solution

13. Explain the formation of water with copper catalyst by intermediate compound formation theory.

View Text Solution

14. Explain the mechanism of oxidation of HCl by air in the presence of $CuCl_2$.

View Text Solution

15. Explain the thermal decomposition of potassium chlorate by intermediate compound formation theory.

View Text Solution

16. Describe the action of active centres present in the catalyst.

View Text Solution

17. Write a note about nano catalyst.

View Text Solution

18. Differentiate lyophillic and lyophobic colloids

View Text Solution

19. Explain about dispersion medium, dispersed phase and example of (i) foam, (ii) emulsion (iii) sol.

View Text Solution

20. Explain about dispersion medium, dispersed phase and example of (i) solid foam, (ii) Gel (iii) Solid sol.

View Text Solution

21. How would you prepare colloids of ink and graphite? (OR) Explain about mechanical dispersion method.

View Text Solution

22. Explain about Bredic's are method (or) Electro dispersion method (or) How would you prepare colloids of noble metals?

View Text Solution

23. Explain about ultrasonic dispersion. (or) How would you prepare mercury colloid?

View Text Solution

24. Explain the methods of preparation of colloids of (i) AS_2S_3 (ii) S.

View Text Solution

25. Describe about (i) Dialysis (ii) Electro dialysis.

View Text Solution

26. Explain about ultrafiltration.

View Text Solution

27. Write a note about shape of colloidal particles.

View Text Solution

28. What is meant by Tyndall effect? (or) Explain about the optical property of colloid.

View Text Solution

29. What is meant by Brownian movement?

View Text Solution

30. Mention the uses of Brownian movement.

View Text Solution

31. What is coagulation? Mention the method used to coagulate a colloid.

View Text Solution

32. The precipitation power of ions are in the order $Al^{3+} > Ba^{3+} > Na^{+}$. Similarly $\left[Fe(CN)_6\right]^{4-} > SO_4^{2-} > Cl^{-}$. Give the reason behind this .

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33. Explain how coagulation of colloid is carried out by (i) Electrophoresis (ii) By mixing two oppositely changed sols (iii) By boiling.

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34. Explain about protective action of colloid.

View Text Solution

35. What are emulsions? Give its types. Explain with examples.

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36. Write 3 examples for emulsifiers.

View Text Solution

37. What is meant by inversion of phase? Explain with example.

View Text Solution

38. Write a note about medicinal applications of colloids.

View Text Solution

39. How colloids are used in (i) Tanning of leather (ii) Rubber industry (iii) Sewage disposal.

View Text Solution

View Text Solution

40. How would you distinguish natural honey from artificial honey?

View Text Solution

41. Give four uses of emulsions.

View Text Solution

42. (a) Adsorption of a gas on the surface of solid is generally accompanied by a decrease in entropy.

Still it is a spontaneous process. Explain.

(b) How does an increase in temperature affect both physical as well as chemical adsorption?

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43. (a) What is the difference between a colloidal solution and an emulsion? Give one example of each.

(b) What are emulsifiers?

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44. Explain what is observed when:

(i) KCl, an electrolyte, is added to an hydrated ferric hydroxide sol.

(ii) An electric current is passed through a colloidal solution.

(iii) A beam of light is passed through a colloidal solution.

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45. Write three distinct differences between physical adsorption and chemisorption.

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46. Explain the following observations.

(a) Lyophilic colloid is more stable than lyophobic colloid.

(b) Coagulation takes place when sodium chloride solution added to a colloidal solution of ferric hydroxide.

(c) Sky appears blue in colour.

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47. (a) Heat of adsorption is greater for chemisorption than physisorption. Why?

(b) What is colloidion?

(c) Differentiate between peptization and coagulation.

View Text Solution

48. Give reasons for the following:

(a) Enzyme catalysts are highly specific in their action.

(b) The path of light becomes visible when it is passed through As_2S_3 sol in water.

(c) The enthalpy in case of chemisorption is usually higher than that of physisorption.

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49. What is adsorption? How does adsorption of a gas on a solid surface vary with pressure? Illustrate with the help of an appropriate graph.

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50. How do size of particles of adsorbent, pressure of a gas and prevailing temperature influence of extent of adsorption of a gas on a solid?

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Additional Questions 5 Marks Questions

1. What is adsorption isotherm? Explain about Freundlich adsorption isotherm.

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2. Define catalyst. What are the characteristics of catalysts?

View Text Solution

3. What is enzyme catalysis? Give the characteristics of enzyme catalysed reaction?

View Text Solution

4. Explain about phase transfer catalysis.

View Text Solution

5. Explain about the classification of colloids based on the physical state of dispersed phase and dispersion medium with example.

View Text Solution

6. Describe about condensation methods of preparation of colloids. (OR) Describechemical methods of preparation of colloids.

View Text Solution

7. Describe about the properties of colloids.

View Text Solution

8. Explain about Electrophoresis (or) Cataphoresis (or) How would you detect the presence of charges on sol particles? (or) Explain about the method used to detect the presence of charge on sol particles.

View Text Solution

9. What are emulsion? Mention its type with example. What is emulsification? How the types of emulsions are identified?

View Text Solution

10. What is deemulsification? Explain about the various techniques of deemulsification.

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11. (a) How can a colloidal solution and a true solution of the same colour be distinguished from each other?

(b) List four applications of adsorption.

View Text Solution

12. Illustrate with examples -

(i) Lyophilic and Lyophobic sols

(ii) Homogeneous and Heterogeneous catalysis.

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