

India's Number 1 Education App

CHEMISTRY

BOOKS - BODY BOOKS PUBLICATION

SURFACE CHEMISTRY



1. Hair cream is an example of_____.

2. When a beam of light is passed through a

colloidal solution, It

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3. LyophIIIc sols are more stable than lyophobic sols because the particles

A. are heavy

B. are solvated

C. are positively charged

D. none

Answer:

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4. If the adsorbate is held on a surface by weak van der wadis' forces, the adsorption process is called .

5. Shape selective catalysis Is a reaction catalysed by

A. enzymes

B. acids

C. bases

D. zeolttes

Answer:

6. The gas which is least absorbed on charcol

ls

A. CO_3

B. HCI

 $\mathsf{C}.O_2$

D. NH_3

Answer:



7. Shape selective catalysis Is a reaction catalysed by

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8. Collodion is a 4% solution of which one of the following In alcoholether mixture?

A. Nitrocellulose

B. Glycol nitrate

C. Methyl cellulose

D. None

Answer:

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9. Lyophllic sols are more stable than

lyophobic sols because the particles

10. What is the role of a catalyst In a catalysed reaction ?

A. increases the activation energy

B. Affects the enthalpy change

C. Affects the free energy change

D. Lowers the activation energy

Answer:

11. To stop bleeding from an injury, ferric chlolride can be applied."State this statement Is true or false ?

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12. Choose correctly matched pair

A. Smoke: sols

B. cheese:Aerosols

C. milk:emuisions

Answer:



13. Observe the relationship between the first two terms and fill in the blanks.Aerosols :Gas Sols:____

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14. Which has a higher enthalpy of adsorption

physlsorption or chemisorption?







21. In sugar Industry, the raw juice obtanied is usually yellowish brown In colour.Which materialis used to decolourise sugar solution?



22. In sugar Industry, the raw juice obtanied is usually yellowish brown In colour.Explain the chemistry behind it.



23. Why is the ester hydrolysis slow at the beginning and becomes faster after some time?



24. Among the following electrolytes which willbe most effective n coagulating gold sol which carries negative charge. Justify your answer. KCI, Na_3PO_4 , $MgCI_2$.

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25. The presence of electrical charge on colloidal particles is responsible for the stability of colloidal systems. Addition of $AgNO_3$ solution to KI solution results in a colloidal solution. What charge is likely to develop on the particles of'this colloidal solution ?

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26. Throwing of electrical sand particles on clouds causes -rain. How will you describe this?

27. Viscosity of a lyophilic sol is higher than

that of its dispersion medium. Why?



28. Cheese and milk are examples of two

colloidal system. How do they dlffer?



29. Gelatine in ice-cream prevents the formation of large crystals of Ice".Justify the property of gelatine here as lyophilic colloid



30. Gelatine in ice-cream prevents the formation of large crystals of Ice".For coagulaltion of As_2S_3 sol,which is more effective AI^{3+} or Na^+ .

31. Write two examples for adsorption and absorption



32. Sulphur sollsformedby dissolving sulphur in alcohol and the solution is diluted with water. Name the method of formationin the above, describehow colloids are formed.



33. Differentiate sorption and desorption ?



34. Colloids are an intermediate between suspension and solutions. Suggest suitable method for the preparation of the following sol:Gold sol

35. Colloids are an intermediate between suspension and solutions. Suggest suitable method for the preparation of the following sol:Ferric hydroxide sol

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36. Explain the following with suitable

examples:Aerosol

37. Explain the following with suitable

examples. Gel



38. Explain the following with suitable examples. Hydrosol

39. In the lab three students were asked to prepare a colloidal solution. Student A .: Added starch powder into hot water. Student B : Added a small amount of ferric chlorideInto freshly prepared ferric hydroxide. Student C : Added soap In to water. Which type of colloid was prepared by student A, lyophoblc sol or lyophillcsol?



40. In the lab three students were asked to prepare a colloidal solution. Student A .: Added starch powder into hot water. Student B : Added a small amount of ferric chlorideInto freshlyprepared ferric hydroxide. Student C : Added soap In to water.Name the process adopted by student B.

41. In the lab three students were asked to prepare a colloidal solution. Student A .: Added starch powder into hot water. Student B : Added a small amount of ferric chlorideInto freshlyprepared ferric hydroxide. Student C : Added soap In to water. Identify amacromolecular colloid and an associated colloid from the three colloids prepared.

42. When a beam of light is passed through a

colloidal solution, It

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43. Explain what is observed. An electrolyte,

NaCI is added to hydrated ferric hydroxide sol.

44. Explain what is observed. Electric current Is

passed through a colloidal sol.

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45. Give any two similarities and differences

between physisorption and chemisorption.

46. Some of the important applications of colloids are given below. Identify and justify the properties, of colloids responsible for the applications. i.Purification of water

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47. Some of the important applications of colloids are given below. Identify and justify the properties of colloids responsible for the applications. Cleansing action of the soap.



48. Some of the important applications of colloids are given below. Identify and justify the properties of colloids responsible for the applications.i.Sewage disposal.

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49. Smoke and dust create health problems in

industrial areas. The removal of these particles

electrophoresis.Explain electrophoresis.



50. Smoke and dust create health problems in industrial areas. The removal of these particles from air involve the principle of electrophoresis. Give any three application of adsorption.



51. Adsorption of a gas on solid can be graphically represented as follows: The plot of. x/m, Vs P at constant temperature is called



52. Adsorption of a gas on solid can be graphically represented as follows: Sketch the graph $\log x \,/\,m$ Vs log P

53. Give an example for shape selective catalysts. Explain.
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54. Adsorptions are generally exothermic in nature. Explain.



55. In aqueous solution soap form ionic micelle which act as emulsifying agent Explain.Watch Video Solution

56. Account for the following: Ferric hydroxide sol Is more readily coagulated by Na_3PO_4 In comparison to KCI.

57. Give reason why a finely divided substance

is more effective as an adsorbent?

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58. Water vapours are absorbed by anhydrous calcium chloride while these are a adsorbed by silica gel.Point out the difference between absorption and adsorption.



59. Water vapours are absorbed by anhydrous calcium chloride while these are a adsorbed by silica gel. Are all adsorptions exothermic In nature?



60. Though adsorption Is exothermic, Increase

In temperature Initially Increases the extend of

chemisorption. Explain.

61. A synthetic Zeolite ZSM-5 Is used to convert

alcohol to petrol. Comment on the catalytic property of Zeolite.



62. "Heterogenous catalytic action is a surface

phenomenon."Do you agree with the

statement ? Justify your answer?
63. "Heterogenous catalytic action is a surface phenomenon. Enzymes are specific In action. Support the statement with suitable Illustration.



64. Illustrate the following with suitable example.Multimolecular colloids and macromolecular colloids.

65. Illustrate the following with suitable example.Homogeneous and heterogeneous catalysis.



66. Assign reason for the following:Lyophlllc

sols are reversible.

67. Assign reason for the following: Bleeding from a fresh cut stops on applying ferric chloride or alum.



68. Adsorption has many applications. Write

any two applications of adsorption.



69. Physisorption and chemisorption are the two types of adsorption. Write any four differences between them.



70. There are mainly two types of adsorption

of gases on solids. What are the two types of

adsorption of gases?



71. There are mainly two types of adsorption of gases on solids.Write any two characteristics of each of the above two types of adsorption.

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72. Ferric hydroxide sol can be prepared from freshly perpared ferric hydroxide precipitate. It can also be prepared by adding ferric chloride solution to boilling water. In both cases the sol particles are positively charged. Name the above two methods of preparation of ferric

hydroxide sol.



73. Ferric hydroxide sol can be prepared from freshly prepared ferric hydroxide precipitate. It can also be prepared by adding ferric chloride solution to boiling water. In both cases the sol particles are positively charged. What happenswhen an electric pot ential is applied across two platinum electrodes dipping in"

ferric hydroxide sol? Explain.



74. Comment on the statement that "colloid is

not a substance but a state of substance".

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75. Action of soap is due to emulsification and

micelle formation. Comment.





77. Give reason why a finely divided substance

is more effective as an adsorbent?

78. what are enzymes? Write in brief the mechanism of enzyme catalysis.



79. How are colloids classified on the basis of

physical states of components.

80. How are colloids classified on the basis of

nature of dispersed phase.

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81. How are colloids classified on the basis of interaction between dispersed phase and dispersion medium?

82. How do emulsifires stabilise emulsion?

Name two emulsifiers.

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83. Bredig's arc method is used to prepare which of the following sol ?

A. Silver sol

B. Gelatine sol

C. CdS sol

D. As_2S_3 sol

Answer:

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84. The existence of charge on colloidal particles is confirmed by electrophoresis experiment.What is meant by electrophoresis

?



85. The existence of charge on colloidal particles is confirmed by electrophoresis experiment. In the coagulation of, a negative sol, the coagulating power is in the order $AI^{3+} > Ba(2+) > Na^+$. Name and state the rule behind this?

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86. Briefly explain the dlfferents types of emulsions and give example for each.



electrophoresis and electro-osmosis.

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88. State Hardy-Schulzerule with the help of

example.

89. Why lyophilic colloids are used as protective colloids?

90. There are mainly ,two types of adsorption.

They are physlsorption and

chemisorption.Differentiate between

physiosorption and chemisorption.

91. There are mainly ,two types of adsorption. They are physlsorption and chemisorption.Write any two applications of adsorption.



92. Catalysis can be classified into two groups-

homogeneous and heterogeneous. What do

you mean by homogeneous catalysis?

93. Catalysis can be classified Into two groups

homogeneous and heterogeneous. Write one

example for heterogeneous catalysis.



94. Which of the following is an emulsifying

agent for O/W emulsion?

Milk,Butter,Gum,Lamp black

A. Milk

B. Butter

C. Gum

D. Lamp black

Answer:



95. Which of the following is lyophobic colloid?

A. starch in water

B. gum in water

C. soap in water

D. gold sol

Answer:

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96. Colloids are widely used in industry and in daily life. Write any four applications of colloids.

97. Adsorption Is the phenomenon of higher concentration of particles on the surface than in the bulk of the solid.For adsorption, $\Delta H = -ve$. What is the sign of ΔS for adsorption.?.

98. Adsorption Isthephenomenon of higher concentration of particles on the surface than in the bulk of the solid. The dispersed phase

and dispersion medium in soap lather are respectively.

A. gas and liquid

B. liquid and gas

C. solid and gas

D. solid and liquid

Answer:

99. The formation of micelles which occurs only beyond a certain temperature is called **Vatch Video Solution**

100. The Ion which is more effective for the

coagulation of negative sol As_2S_3 is ?

101. Sols are colloidal systems in which dispersion medium is liquid and dispersed phase is sold, Write any four differences between lyophilic and lyophobic sols

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102. Peptisation is a method of preparation of

sol. Write a general procedure for peptisation.

103. The accumulation of molecualr species at the surface rather than in the bulk of a solid or liquid is termed adsorption. What is asorption isotherm?



104. The accumulation of molecualr species at the surface rather than in the bulk of a solid or liquid is termed adsorption. Write the mathematical expression of Freundlich adsorption isothem.



105. Enzymes are known as biochemical catalysis. Write the two important characteristics of enzyme catalysis.

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106. What is Tyndall effect?

107. State Hardy-Schulze rule which deals with the coagulation of colloids by the addition of an electrolyte.



108. What is a protective colloid?

109. Colloids are widely used in industry and in

daily life. What are colloids?

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110. Colloids are widely used in industry and in daily life. Write any four applications of colloids.

111. Physisorption and chemisorption are two types of adsorption. What is the effect of temperature on physisorption and chemisorption?

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112. In certain cases, physisorption tansfers

into chemisorption as temperature is

increased. Explain with an example.

113. Explain how colloids get coagulated on addition of salts.

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114. As_2S_3 sol particles are -negatively charged. What happens when barium chloride solution is added to the above sol?

115. As_2S_3 sol particles are -negatively charged. How do you account for the above process?

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116. As_2S_3 sol particles are -negatively charged.What is the effect of adding aluminiumchloride instead of barium chloride?



between adsorbate and adsorbent are ____.



120. Name the method of formation of two roads of the gold metal are immersed in cold alkaline water and a direct electric are is struck.

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121. Zeolites are widely used in softening water. ____ is an important zeolites catalyst

used in petroleum industry.

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122. Zeolites are widely used in softening water Why are zeolites used for softening water?

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123. Adsorption are generally exothermic in nature?Give the thermodynamic explanation



124. Colloids exhibit certain special properties Name the property of colloid involed in the construction of ultramicroscope.

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125. What are the conditions to be satisfied to

exhibit Tyndall effect?



128. Explain the following Demulsifier



129. How can a colloidal solution and true

solution of the same colour be distinguished

from each other?



130. List four applications of adsorption.


