



CHEMISTRY

BOOKS - NARENDER AVASTHI CHEMISTRY (HINGLISH)

SURFACE CHEMISTRY

Exercise

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

A. *suspenison > colloidal > truesolution*

B. *truesolution > suspension > colloidal*

C. *suspension > colloidal = truesolution*

D. none of these

Answer: a



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2. A colloidal system has what size of particles ?

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

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

C. $10^{-9}m$ to $10^{-12}m$

D. $10^{-6}m$ to $10^{-9}m$

Answer: d



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3. Which are not purely surface phenomena?

A. Adsorption , surface tension

B. surface tension , viscosity

C. Absorption , viscosity

D.

Answer: d



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4. absorbed acetic acid on activated carbon is :

- A. adsorber
- B. absorber
- C. adsorbent
- D. adsorbate

Answer: d



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5. Adsorbed due to strong chemical force is called :

- A. chemisorption
- B. physisorption
- C. both (a) and (b)
- D. none of these

Answer: a



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6. Adsorbed of gases on solid surface is exothermic beacouse :

- A. free energy increases
- B. entropy decreases
- C. entropy increases
- D. interaction developed between gas and solid particles

Answer: d



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7. the nature of bonding forces in adsorption are:

- A. purely physical such as van der Waals' forces
- B. purely chemical
- C. both chemical and physical are possible
- D. none of these

Answer: c



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8. which one of the following is not applicable to chemisorption ?

- A. Heat of adsorption is negative
- B. it takes place at high temperature
- C. it is reversible

D. It forms mono- molecular layer

Answer: c



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9. which one of the following characteristics is correct for physical adsorption ?

A. it is very specific

B. Adsorption on solids is irreversible

C. Adsorption decreases with decrease in temperature

D. Generally both enthalpy and entropy of adsorption are negative

Answer: d



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10. which of the following statement is not correct ?

- A. physical adsorption is due to van der Waals' forces
- B. physical adsorption is irreversible
- C. Chemical adsorption increases with increase in temperature upto certain limit than decreases
- D. Enthalpy of adsorption ($-\Delta H$) of a chemical is greater than of physical adsorption

Answer: b



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11. which gas will be adsorbed on a solid to greater extent ?

- A. Having non - polar molecule
- B. Having highest critical temperature

C. Having lowest critical temperature

D. Having lowest critical pressure

Answer: b



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12. which of the following factors affects the adsorption of a gas on solid ?

A. Critical temperture (t_c)

B. temperature of gas

C. pressure of gas

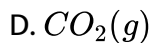
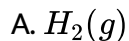
D. All of these

Answer: d



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13. which gas is adsorbed to maximum amount by activated carbon ?

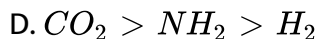
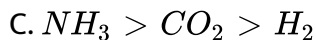
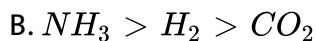


Answer: d



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14. the volume of gases NH_3 , CO_2 and H_2 adsorbed by one gram of charcoal at 300 K are in order of :



Answer: c



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

- A. silica gel
- B. Calcium acetate
- C. Hair gel
- D. Anhydrous $CaCl_2$

Answer: a



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16. Absorption and adsorptions are respectively :

- A. Surface phenomena , bulk phenomena

B. bulk phenomena , surface phenomena

C. both are bulk phenomena

D. both are surface phenomena

Answer: b



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17. Adsorption is multilayer in case of :

A. physical adsorption

B. chemisorption

C. both (A) and (B)

D. none of these

Answer: a



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18. What is physical adsorption.

- A. chemical adsorption
- B. physical adsorption
- C. both (a) and (b)
- D. none of these

Answer: b



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19. The effect of pressure on adsorption is high if

- A. temperature is low
- B. temperature is high
- C. temperature is very high
- D. larger charcoal piece is taken

Answer: A



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20. Sorption is the phenomenon :

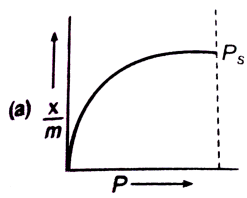
- A. reverse of adsorption
- B. reverse of absorption
- C. when adsorption and absorption takes place simultaneously
- D. None of the above

Answer: c

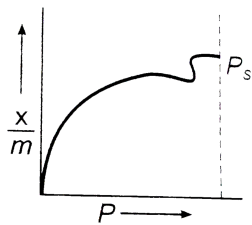


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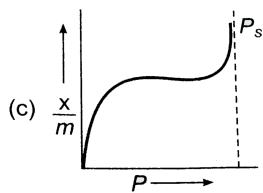
21. which of the following adsorption isotherms represents the adsorption of a gas by a solid involve multilayers of formation ? (p_s = saturation pressure)



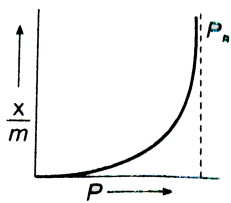
A.



B.



C.



D.

Answer: a



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22. A plot of $\log \left(\frac{x}{m} \right)$ against $\log P$ for the adsorption of a gas on a solid gives a straight line with slope equal to :

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

B. n

C. $\log K$

D. K

Answer: a



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23. the heat evolved in chemisorption lies in the range (in kJ/mol) of :

A. 80 to 240

B. 20 to 40

C. 40 to 80

D. 20 to 100

Answer: a



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

A. 20 - 40

B. 40- 100

C. 100 - 200

D. 200 - 400

Answer: a



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25. According to the adsorption theory of catalysis ,the speed of the reaction increases because:

- A. in the process of adsorption , the activation energy of the molecules becomes large
- B. adsorption produces heat which increases the speed of the reaction
- C. adsorption lowers the activation energy of the reaction
- D. adsorption increases the activation energy of the reaction

Answer: c



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26. 3.6 gram of oxygen of adsorbed on 1.2 g of metal powder. What volume of oxygen adsorbed per gram of the adsorbent at 1 atm and 273 K ?

A. 0.19 L g^{-1}

B. 1 L g^{-1}

C. 2.1 L g^{-1}

D. none of these

Answer: c



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27. A catalytic poison renders the catalyst ineffective because :

- A. It is preferentially adsorbed on the catalyst
- B. It adsorbs the molecules of the reactants
- C. It combines chemically with the catalyst
- D. it combines chemically with one of the reactants

Answer: a



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28. the catalyst used in the hydrogenation of oils is :

A. Fe

B. Ni

C. Pt

D. V_2O_5

Answer: b



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29. the function of zymase is to :

A. change starch into sugar

B. ferment glucose to alcohol and CO_2

C. change malt sugar into glucose

D. change starch into malt sugar and dextrin

Answer: b



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30. the conversion of maltose to glucose is possible by the enzyme :

A. zymase

B. lactase

C. maltase

D. diastase

Answer: c



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31. shape selective catalysis is a reaction catalysed by

A. enzymes

B. ziegler - Natta Catalyst

C. zeolites

D. platinum

Answer: c



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32. the process whichh is catalysed by one of the product is called

- A. acid - base catalysis
- B. autocatalysis
- C. negative catayst
- D. homogeneous catalysis

Answer: b



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33. An inhibitor is essentially:

- A. a negative catalyst
- B. a heterogeneous catalysis
- C. an auto catalyst
- D. a homogeneous catalyst

Answer: a



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34. A catalyst in the finely divided form is most effective because :

- A. less surface area is available
- B. more active sites are formed
- C. more energy gets stored in the catalyst
- D. none of these

Answer: b



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35. identify the correct statement regarding enzymes :

- A. Enzymes are specific biological catalysis that normally works at high temperature
- B. Enzymes are normally heterogeneous catalysis which decrease the reaction rate
- C. Enzymes are specific biological catalysis with low molar masses
- D. Enzymes are specific biological catalysis that are very specific in nature

Answer: d



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

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

Answer: d



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37. Crystalloids differ from colloids mainly is respect of :

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

Answer: c



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38. surface tension of lyophilic sols is

- A. lower than water
- B. more than water
- C. equal to water
- D. none of these

Answer: a



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39. which one of the following is not used for preparing lyophilic sols ?

- A. starch
- B. Gum
- C. Gelatin

D. Metal sulphide

Answer: d



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40. which one of the sols acts as protetive colloid ?

A. As_2S_3

B. Gelatin

C. Au

D. $Fe(OH)_3$

Answer: b



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41. which one of the following is lyophilic colloid ?

A. Pt

B. Gum

C. Fog

D. Blood

Answer: b



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42. small liquid droplets dispersed in another liquid is called :

A. suspenison

B. emulsion

C. gel

D. true solution

Answer: b



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43. which of the following is an example of associated colloid ?

A. protein in water

B. Soap in water

C. Rubber in benzene

D. $FeCl_3$ in H_2O

Answer: b



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44. Among the following , select the properties pf lyophilic colloidal sols :

A. viscosity same as that of the medium

B. extensive hydration takes place

C. particle migrate either towards cathode or anode in an electric field

D. particle can be readily detected under ultramicroscope

Answer: b



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45. Of which of the following colloidal systems, fog is an example?

A. liquid in a gas

B. gas in a liquid

C. gas in a solid

D. solid in a liquid

Answer: a



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46. colloidal systems are not classified on the basis of :

- A. molecular size
- B. nature of the particles
- C. surface tension value
- D. interaction between disperse phase and dispersion medium

Answer: c



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47. All colloids :

- A. are suspensions of one phase in another
- B. are two - phase systems
- C. contain only water - soluble particles
- D. are true solutions

Answer: b



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48. which of the following is a lyophobic colloid ?

A. Gelatin

B. sulphur

C. starch

D. Gum arabic

Answer: b



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49. which of the following is not a gel ?

A. Cheese

B. jellies

C. Curd

D. Milk

Answer: d



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50. Describe the cleaning action of soap.

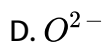
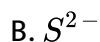
- A. non - polar tails of soap molecules dissolve in grease
- B. oil and grease dissolves into hydrophilic centres of soap micelles
acid washed away
- C. hydrophilic heads dissolves in grease
- D. hydrophilic heads dissolves in grease

Answer: A



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51. Arsenous sulphide sol is prepared by passing H_2 through arsenous oxide solution . The charge developed on the particles is due to adsorption of :



Answer: b



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

A. copper

B. gold

C. silver

D. sodium

Answer: d



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53. As_2S_3 sol is ,

A. positive colloid

B. negative colloid

C. neutral colloid

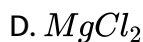
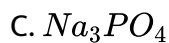
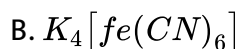
D. none of the above

Answer: b



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54. which of the following electrolyte will be most effective in coagulation of negative sol ?



Answer: d



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55. the minimum amount of an electrolyte required to cause coagulation of a sol is called :

A. Coagulation value

B. Gold number

C. protective value

D. None of these

Answer: a



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56. the electrical charge on a colloidal particle is indicated by :

A. Brownian movement

B. electrophoresis

C. ultramicroscope

D. molecular sieves

Answer: b



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57. colloidal particles in a sol can be coagulated by :

- A. heating
- B. adding an electrophoresis
- C. adding oppositely charged sol
- D. any of the above methods

Answer: d



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58. peptization involves :

- A. precipitation of colloidal particles
- B. disintegration of colloidal aggregates
- C. purification of colloids
- D. impact of molecules of the dispersion medium on the colloidal particles

Answer: b



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59. hardt - Schulze law states that :

- A. solution must have higher gold number
- B. disperse phase and dispersion medium must be of the same sign
- C. micelles coagulate in presence of surfactants
- D. the ions carrying more opposite charge to that of sol particle are effective in coagulation

Answer: d



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60. Given below are a few electrolytes, indicate which one among them will bring about the coagulation of a gold sol quickest and in the least of concentration ?

A. NaCl

B. MgSO_4

C. $\text{Al}_2(\text{SO}_4)_3$

D. $\text{K}_4[\text{Fe}(\text{CN})_6]$

Answer: c



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

A. its size

B. the magnitude of its charge only

C. the sign of its charge alone

D. both magnitude and sign of its charge

Answer: d

62. An emulsifying agent is a substance which

- A. stabilies the emulsion
- B. de- stabilize the emulsion
- C. coagulates the emulsion
- D. break the interfacial film between suspended particle and medium

Answer: a

63. colloidal solution of gold is prepared by :

- A. colloidal mill
- B. double decopostion method
- C. Breeding 's method

D. peptization

Answer: c



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64. The formation of a colloidal from suspension is

A. peptisation

B. condenstion

C. sedimentation

D. fragmentation

Answer: a



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65. The method usually employed for the precipitation of a colloidal solution is

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

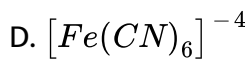
Answer: b



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66. the method usually employed for the destruction of a colloidal solution charged sol ?

- A. Cl^{-}
- B. SO_4^{2-}
- C. PO_4^{3-}



Answer: d



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67. which of the following will have the highest coagulating power for $Fe(OH)_3$ colloid ?



Answer: a



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68. Artificial rain is caused by spraying :

- A. opposite charged collidal dust over a cloud
- B. same charged collidal dust over a cloud
- C. both
- D. none of these

Answer: a



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69. Colloids can be purified by :

- A. condensation
- B. peptization
- C. coagulation
- D. dialysis

Answer: d



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70. At what PH range the rate of enzyme catalyzed reaction is maximum ?

A. 5 to 7

B. 6 to 8

C. 7 to 9

D. 8 to 9

Answer: a



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71. Protective sols are:

A. lyophilic

- B. lyophobic
- C. both (a) and (b)
- D. none of these

Answer: a



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72. Electro - osmosis is observed when :

- A. dispersion medium particles begin to move in an electric field
- B. dispersed phase to move in an electric field
- C. both (a) and (b)
- D. none of these

Answer: a



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73. on adding $AgNO_3$ solution into KI solution , a negatively charged colloidal sol is obtained when they are in :

- A. 50 mL of 0.1 M $AgNO_3$ + 50 ml of 0.1 M KI
- B. 50 mL of 0.1 M $AgNO_3$ + 50 ml of 0.2 M KI
- C. 50 mL of 0.2 M $AgNO_3$ + 50 ml of 0.1 M KI
- D. none of these

Answer: b



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74. A sol is prepared by addition of excess of $AgNO_3$ solution in KI solution . The charge likely to develop on colloidal particles is :

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

D. both charges

Answer: a



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75. The gold numbers of protective colloids A,B,C and D are 0.04, 0.004, 10 and 40 respectively . The protective powers of A,B,C and D are in the orders .

A. $A > B > C > D$

B. $B > A > C > D$

C. $D > C > A > B$

D. $D > C > B > A$

Answer: b



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

- A. linear
- B. curved
- C. zig- zag
- D. uncertain

Answer: c



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

- A. Adsorption
- B. Tyndall effect
- C. Flocculation
- D. Paramagnetism

Answer: d



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78. Tyndall effect in colloidal solution is due to

A. presence of electrical charges

B. scattering of light

C. absorption of light

D. reflection of light

Answer: b



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

- A. absorption of light by dust particles
- B. reflection of light by dust particles
- C. scattering of light by dust particles
- D. pesence of clouds

Answer: c



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80. the apparatus used to coagulate carbon particles from smoke is called

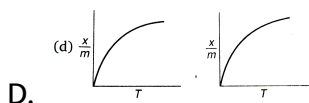
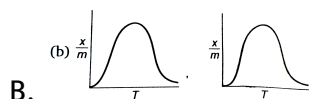
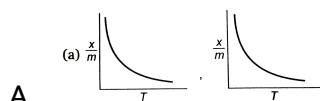
,

- A. cottrel smoker
- B. cottrell precipitator
- C. cottell absorber
- D. none of these

Answer: b

81. select correct absorption isobars for chemisorption and physisorption respectively ,

(where $\frac{x}{m}$ = extent of adsorption , T = temperature)



Answer: C

82. which among the following statement is false ?

- A. Increase of pressure increases the amount of adsorption
- B. Increase of temperature may decrease the amount of adsorption
- C. Adsorption may be monolayered or multilayered
- D. particles size of the adsorbent will not affect the amount of adsorption

Answer: d



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83. select incorrect statement :

- A. Lyophilic sols are reversible
- B. Lyophobic sols are self stabilized
- C. Lyophobic sols are obtained from inorganic materials
- D. Lyophobic sols particles are hydrated

Answer: d



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84. which one of the following statements is not correct in respect of lyophilic sols /

- A. there is a considerable interaction between the dispersed phase and dispersion medium
- B. these are quite stable and are not easily coagulated
- C. they carry charge
- D. the particles are hydrated

Answer: c



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85. Alum purifies muddy water by

- A. dialysis

- B. absorption
- C. coagulation
- D. ultrafiltration

Answer: c



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86. Lyophilic sols are more stable than lyophobic sols because

- A. the colloidal particles have positive charge
- B. the colloidal particles have negative charge
- C. the colloidal particles are solvated
- D. there is strong electrostatic repulsion between the colloidal particles

Answer: c



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87. Arrange the following electrolytes in the increasing order of coagulation power for the coagulation of As_2S_3 sol :



A. $I < II < III < IV$

B. $I = III < II < IV$

C. $II < IV < I < III$

D. $II < III < IV < I$

Answer: B



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88. equal volume each of two sols of AgI, one obtained by adding $AgNO_3$ to slight excess of KI and another obtained by adding KI to slight excess of $AgNO_3$ are mixed together . Then :

- A. the two sols will stabilize each other
- B. the sol particles will acquire more electric charge
- C. the sols will coagulate each other mutually
- D. a true solution will be obtained

Answer: c



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89. which of the following statement is not true about the oil - in - water type emulsion ?

- A. Addition of small amount of water , no separate layer of water is formed
- B. Addition of a small amount of oil soluble dye renders the entire emulsion coloured
- C. Addition of oil results in the formation of two layers

D. Addition of a small amount of an electrolyte increases the conductivity of the emulsion

Answer: b



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90. Under the influence of an electric field, the particles in a sol migrate towards cathode. The coagulation of the same sol is studied using NaCl , Na_2SO_4 , and Na_3PO_4 solutions. Their coagulation values will in the order

- a. $\text{NaCl} > \text{Na}_2\text{SO}_4 > \text{Na}_3\text{PO}_4$
- b. $\text{Na}_2\text{SO}_4 > \text{Na}_3\text{PO}_4 > \text{NaCl}$
- c. $\text{Na}_3\text{PO}_4 > \text{Na}_2\text{SO}_4 > \text{NaCl}$
- d. $\text{Na}_2\text{SO}_4 > \text{NaCl} > \text{Na}_3\text{PO}_4$

A. NaCl

B. Na_2SO_4

C. Na_3PO_3

D. same for all

Answer: a



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91. select incorrect statement:

A. Micelles are associated collodies

B. the electrical charge on a colloid paritcle is indicated by electrophoresis

C. formation of micelles takes place above Kraft temperature

D. formation of micells takes place below CMC.

Answer: d



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92. Bredigs arc method involves :

- A. dispersion of metal
- B. condensation of metal
- C. dispersion as well as condensation
- D. neither dispersion nor condensation

Answer: C



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93. A freshly prepared $Fe(OH)_3$ precipitate is peptized by adding $FeCl_3$ solution. The charge on the colloidal particle is due to preferential adsorption of

- A. Cl^- ions
- B. Fe^{3+} ions
- C. OH^- ions

D. none of these

Answer: b



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94. select incorrect statement :

A. gold sol is multimolecular colloid

B. large number of particles of a substance aggregate together and formed multimolecular colloids

C. Metal sulphides are lyophobic colloids

D. sulphur sol is multimolecular colloid oand hydrophilic in nature

Answer: d



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95. Associated colloids :

- A. raise both the surface tension and viscosity of water
- B. lower the surface tension and viscosity of water
- C. lower the surface tension and raise the viscosity of water
- D. have greater concentration at the surface layer than the bulk of the solution

Answer: c



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96. Below critical micelle concentration (CMC):

- A. the surfactant molecules of ionic surfactants undergo association to form clusters
- B. the viscosity of solution increases abruptly

C. substances like grease , fat , etc. dissolve colloiddally

D. salt behave as normal , strong electrolyte.

Answer: D



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97. During electro-osmosis of $Fe(OH)_3$ sol

- a. Sol particles move towards anode
- b. Sol particles move towards cathode
- c. The dispersion medium move towards anode
- d. The sol particles do not move in either direction

A. sol particles move towards anode

B. sol particles move towards carhode

C. the dispersion medium move towards anode

D. the dispersion medium moves towards cathode

Answer: c



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98. select incorrect statement

- A. soap and detergent lower the interfacial surface tension between oil and water
- B. Basic principle of peptization is reverse of coagulation
- C. soap and detergent used as emulsifiers
- D. Lyophilic sols need stabilizing agent

Answer: d



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99. smoke precipitator work on the principle of :

- A. centrifugation
- B. neutralization of charge on colloids

C. absorption

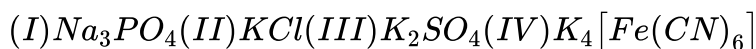
D. addition of electrolytes

Answer: b



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100. what is the correct sequence of the decreasing coagulation value of the following electrolyte for the coagulation of ferric hydroxide sol ?



A. $IV > I > III > II$

B. $II > III > I > IV$

C. $I > II > III > IV$

D. $IV > III > II > I$

Answer: b



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101. Which of the following is true in respect of chemical adsorption?

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

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

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

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

Answer: b



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102. Although nitrogen does not adsorb on surface at room temperature, it adsorbs on the same surface at $83K$. Which one of the following statements is correct?

A. At 83 K there is formation of Monolayer

B. At 83 K , nitrogen is adsorbed as atoms

C. At 83 K , nitrogen molecules are held by chemical bonds

D. At 83 K, there is formation of multimolecular layers

Answer: d



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103. for the coagulation of 50 mL of ferric hydroxide sol 10 mL of 0.5 M KCl is required. What is the coagulation value of KCl ?

A. 5

B. 10

C. 100

D. none of these

Answer: c



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104. 100 mL of 0.6 M acetic acid is shaken with 2 g activated carbon. The final concentration of solution after adsorption is 0.5 M. What is the amount of acetic acid adsorbed per gram of carbon?

- A. 0.6 g
- B. 0.3 g
- C. 1.2 g
- D. none of these

Answer: b



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105. A detergent $(C_{12}H_{25}SO_4^- Na^+)$ solution becomes colloidal sol at a concentration of $10^{-3} M$. On an average 10^{13} colloidal particles are present in $1 mm^3$. What is the average number of ions which are contained by one colloidal particle (micelle)?

- A. 6×10^7

B. 10

C. 60

D. none of these

Answer: c



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106. one gram of activated carbon has a surface area of $1000m^2$. Considering complete coverage as well as monomolecular adsorption, how much ammonia at 1 atm and 273 K would be absorbed on the surface of $\frac{44}{7}$ g carbon if radius of an ammonia molecule is $10^{-8}cm$.

A. $7.46L$

B. $0.33L$

C. $44.8L$

D. $23.5L$

Answer: a



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107. At 1 atm and 273 K the volume of nitrogen gas required to cover a sample of silica gel, assuming Langmuir monolayer adsorption, is found to be $1.30\text{cm}^3\text{g}^{-1}$ of the gel. The area occupied by a nitrogen molecule is 0.16nm^2 . Find out the no. of surface sites occupied per molecule of H_2 .

A. $5.568\text{m}^2\text{g}^{-1}$

B. $3.34\text{m}^2\text{g}^{-1}$

C. $1.6\text{m}^2\text{g}^{-1}$

D. none of these

Answer: a



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108. 10 % sites of catalyst bed have adsorbed by H_2 on Heating H_2 gas is evolved from sites and collected at 0.03 atm and 300 K in a small vessel of 2.46cm^3 .

no. of sites available is 5.4×10^{16} per cm^2 and surface area is 1000cm^2 .

find out the no. of surface sites occupied per molecule of H_2 .

A. 1

B. 2

C. 3

D. none of these

Answer: c



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109. A sample of 16 g charcoal was brought into contact with CH_4 gas contained in a vessel of 1 litre at $27^\circ C$. The pressure of gas was found to fall from 760 to 608 torr. The density of charcoal sample is $1.6\text{g}/\text{m}^3$. What

is the volume of the CH_4 gas adsorbed per gram of the adsorbent at 608 torr and $27^\circ C$?

A. $125 \frac{L}{g}$

B. $16.25m \frac{L}{g}$

C. $26m \frac{L}{g}$

D. none of these

Answer: b



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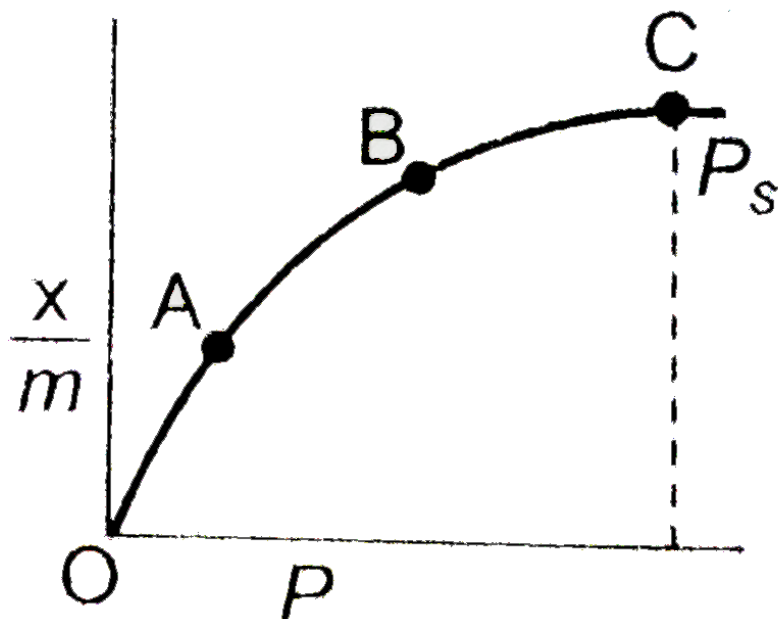
110. A graph between x/m and the pressure P of the gas at a constant temperature is called adsorption isotherm. Where x is the no. of moles of the adsorbate and m is the mass of the adsorbent. Adsorption isotherms of different shapes have been experimentally observed. According to Freundlich adsorption isotherm,

$$x/m = KP^{1/n}$$

where K and n are constant parameters depending upon the nature of

the solid and gas

Inn the given isotherm select the incorrect statement :



- A. $\frac{x}{m} \propto P^{1/n}$ along OA
- B. $\frac{x}{m} \propto P^{1/n}$ when point B is reached
- C. $\frac{x}{m}$ does not increase as rapidly with pressure along BC due to less surface area available for adsorption
- D.

Answer: b

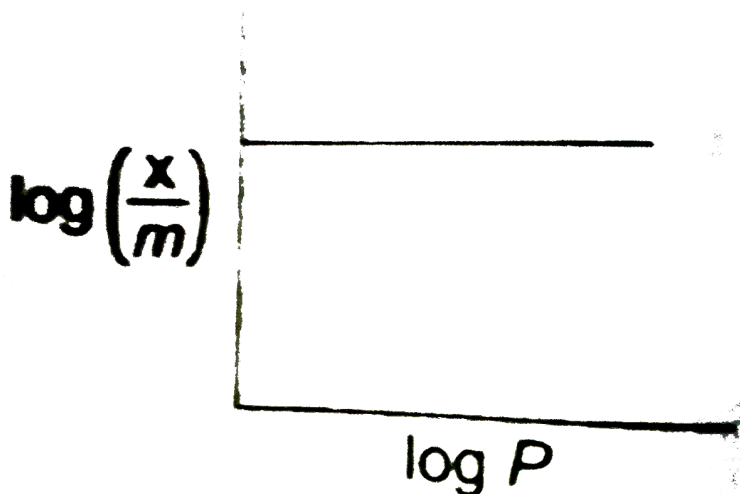


111. A graph between x/m and the pressure P of the gas at a constant temperature is called adsorption isotherm. Where x is the no. of moles of the adsorbate and m is the mass of the adsorbent. Adsorption isotherms of different shapes have been experimentally observed. According to Freundlich adsorption isotherm,

$$x/m = KP^{1/n}$$

where K and N are constant parameters depending upon the nature of the solid and gas

Adsorption isotherm of $\log \left(\frac{x}{m} \right)$ and $\log P$ was found of the type .



A. $P=0$

B. $P=1$

C. $\frac{1}{n} = 1$

D. $p < 1$

Answer: c



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112. A graph between x/m and the pressure P of the gas at a constant temperature is called adsorption isotherm. Where x is the no. of moles of the adsorbate and m is the mass of the adsorbent. Adsorption isotherms of different shapes have been experimentally observed. According to Freundlich adsorption isotherm,

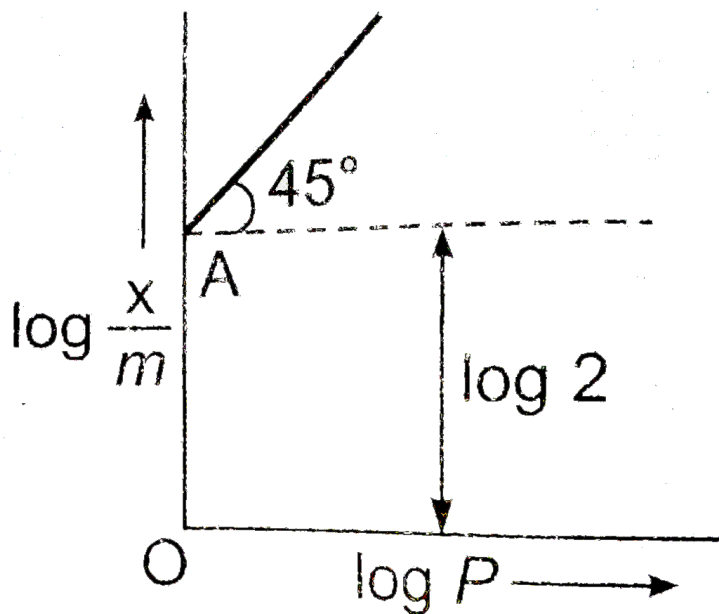
$$x/m = KP^{1/n}$$

where K and N are constant parameters depending upon the nature of the solid and gas

graph between $\log \left(\frac{x}{m} \right)$ and $\log P$ is a straight line at an angle 45° with

intercept OA as shown .

hence, $\left(\frac{x}{m}\right)$ at a pressure of 2 atm is :



A. 2

B. 4

C. 8

D. 1

Answer: b



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113. the protective power of the lyophilic colloids is expressed in terms of gold number, a term introduced by Zsigmondy. Gold number is the number of milli - gram of the protective colloid which prevent the coagulation of 10 mL of red gold sol , when 1 mL of a 10 per cent solution of sodium chloride is added to it . thus smaller the gold number of lyophilic colloid, the greater is the protective power.

On addition of one mL of solution of 10 % NaCl to 10 mL. of red gold sol in presence of 0.025 g of starch the coagulation is just prevented . the gold number of starch is

A. 0.025

B. 0.25

C. 2.5

D. 25

Answer: d



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114. the protective power of the lyophilic colloids is expressed in terms of gold number, a term introduced by Zsigmondy. Gold number is the number of milli - gram of the protective colloid which prevent the coagulation of 10 mL of red gold sol , when 1 mL of a 10 per cent solution of sodium chloride is added to it . thus smaller the gold number of lyophilic colloid, the greater is the protective power.

which of the following statement (S) is / are correct?

- A. higher the gold number, more protective power of colloid
- B. Lower the gold number, more protective power
- C. Higher the coagulation value, more the coagulation power
- D. lower the coagulation value, higher the coagulation power

Answer: b



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115. the protective power of the lyophilic colloids is expressed in terms of gold number, a term introduced by Zsigmondy. Gold number is the number of milli - gram of the protective colloid which prevent the coagulation of 10 mL of red gold sol , when 1 mL of a 10 per cent solution of sodium chloride is added to it . thus smaller the gold number of lyophilic colloid, the greater is the protective power.

gold number gives an indication of

- A. protective nature of colloids
- B. purity of gold in suspension
- C. the charge on a colloidal solution of gold
- D. gram of gold per litre of solution

Answer: a



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116. coagulation is the process by which the dispersed phase of a colloid is made to aggregate and thereby separate from the continuous phase. The minimum concentration of an electrolyte in milli-moles per litre of the electrolyte solution which is required to cause the coagulation of colloidal sol is called coagulation value .

therefore higher is the coagulating power of effective ion, smaller will be the coagulation value of the electrolyte.

$$\text{coagulation value} \propto \frac{1}{\text{coagulating power}}$$

the coagulation values of different electrolytes are different . this behaviour can be easily understood by Hardy - schulze rule which states.

the greater is the valency of the effective ion greater is its coagulating power,"

which one had the highest coagulating power?



Answer: d

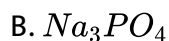
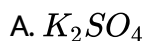


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117. coagulation is the process by which the dispersed phase of a colloid is made to aggregate and thereby separate from the continuous phase. The minimum concentration of an electrolyte in milli-moles per litre of the electrolyte solution which required to cause the coagulation of colloidal sol is called coagulation value .

therefore higher is the coagulating power of effective ion, smaller will be the coagulation value of the electrolyte.

As_2S_3 sol is negatively charged. Capacity to precipitate of a given colloid depends upon :



Answer: c



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118. coagulation is the process by which the dispersed phase of a colloid is made to aggregate and thereby separate from the continuous phase. The minimum concentration of an electrolyte in milli-moles per litre of the electrolyte solution which required to cause the coagulation of colloidal sol is called coagulation value .

therefore higher is the coagulating power of effective ion, smaller will be the coagulation value of the electrolyte.

the ability of an ion to bring about coagulation of a given colloid depends upon :

- A. the sign of its charge
- B. magnitude of its charge
- C. both magnitude and sign
- D. none of these

Answer: c



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119. coagulation is the process by which the dispersed phase of a colloid is made to aggregate and thereby separate from the continuous phase. The minimum concentration of an electrolyte in milli-moles per litre of the electrolyte solution which required to cause the coagulation of colloidal sol is called coagulation value .

therefore higher is the coagulating power of effective ion, smaller will be the coagulation value of the electrolyte.

the coagulation of colloidal particles for the sol can be caused by :

- A. heating
- B. adding electrolyte
- C. adding oppositely charged sol
- D. all of these

Answer: d



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120. Emulsions are normally prepared by shaking the two components together vigorously although some kind of emulsifying agent usually has to be added to stabilize the product. This emulsifying agent may be a soap or other surfactant (surface active) species or a lyophilic sol that forms a protective film around the dispersed phase.

Emulsion broadly classified into two types:

(i) Oil in water emulsions (O/W): Oil acts as dispersed phase and water acts as dispersion medium.

(ii). Water in oil emulsion (W/O): Water acts as dispersed phase and oil acts as dispersion medium. Due test, dilution test may be employed for identification of emulsions.

Q. Read two statements:

(1) milk is an example of oil in water (O/w) type emulsion

(2) cold cream is an example of water in oil (W/O) type emulsion

A. only statement 1 is correct

B. only statement 2 is correct

C. both are correct

D. none of these

Answer: c



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121. Emulsions are normally prepared by shaking the two components together vigorously although some kind of emulsifying agent usually has to be added to stabilize the product. This emulsifying agent may be a soap or other surfactant (surface active) species or a lyophilic sol that forms a protective film around the dispersed phase.

Emulsion broadly classified into two types:

(i) Oil in water emulsions (O/W): Oil acts as dispersed phase and water acts as dispersion medium.

(ii). Water in oil emulsion (W/O): Water acts as dispersed phase and oil

acts as dispersion medium Due test, dilution test may be employed for identification of emulsions.

Q. Read two statment s:

(1) milk is an example of oil in water (O/w) type emulsion

(2) cold cream is an example of water in oil (W/O) type emulsion

A. water in oil emulsions are less viscous than the aqueous emulsions

B. Electrical conductance of aqueous emulsions is less than the of oil emulsions

C. Deemulsification can be done by soap or detergent

D. An emulsion can be diluted with H_2O then it is oil in water (O/w) type

Answer: d



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122. select thee correct statement (S)

- A. physical adsorption is specific in nature
- B. chemical adsorption highly specific in nature
- C. physical adsorption is due to free valence of atoms
- D. chemical adsorption is due to stronger interaction or bond formation

Answer: b,d



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123. select the correct statement (s) :

- A. adsorption is a non - spontaneous process
- B. surface energy decreases during the process of adsorption
- C. adsorption takes place with decrease of entropy
- D. in general adsorption is exothermic process

Answer: b,c,d



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124. select the correct statement (s):

- A. physisorption is favoured by low temperature
- B. chemisorption is favoured by very high temperature because the process is endothermic
- C. chemisorption increase with increases in temperature owing to high activation energy
- D. Oxygen adsorbed by charcoal can be desorbed by lowering pressure and temperature

Answer: a,c,d



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125. If adsorption of a gas on a solid is limited to monolayer formation, then which of the following statements are true?

- A. At low pressures $\frac{x}{m}$ varies proportionately with P
- B. At moderate pressures, $\frac{x}{m}$ varies less than proportionately with P
- C. At high pressure, $\frac{x}{m}$ becomes independent of P
- D. At high pressure, $\frac{x}{m}$ varies more than proportionately with P

Answer: a,c,d



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126. Which of the following are colloids?

- A. Sulphur sol
- B. starch
- C. Gold sol
- D. soap solution

Answer: b,c,d



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127. which of the following is not ?

A. Gelatin sol

B. Silver sol

C. Sulphur sol

D. As_2S_3 sol

Answer: a,b



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128. which of the following is/ are correct for sols ?

A. Its surface tension is lower than that of water

- B. Its viscosity is higher than that of water
- C. Its surface tension is higher than that of water
- D. Its viscosity is equal to that of water

Answer: b,c



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129. select the correct statement (s) :

- A. Benzene is dispersed phase in benzosol
- B. sols are irreversible and not so stable
- C. sol can be produced by double decomposition
- D. when a solution in alcohol is added in excess of water a sol of alcohol is formed

Answer: a,b



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130. When negatively charged colloids like As_2S_3 sol is added to positively charged $Fe(OH)_3$ sol in suitable amounts :

- A. both the are precipitated simultaneously
- B. this process is called mutal coagulation
- C. they becomes positively charged colloid
- D. they become negatively charged colloid

Answer: a,b



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131. Colloidal gold can be prepared by ,

- A. Bredig's arc method
- B. reduction of $AuCl_3$
- C. hydrolysis

D. peptization

Answer: a,b,c,d



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132. The coagulation of sol particles may be brought in by :

- A. boiling
- B. persistent dialysis
- C. adding electrolyte
- D. adding oppositely charged sol

Answer: a,b



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133. select the correct statement (s) :

- A. A sol is prepared by addition of excess of $AgNO_3$ solution in KI solution . The charge likely to develop on colloidal particle is positive
- B. the effects o pressure on physical adsorption is high if temperature is low
- C. Ultracentrifugation process is used for separation of colloids
- D. Gold number is the index for extent of gold plating done

Answer: a,b,d



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134. Colloidal solution can be purified by :

- A. dialysis
- B. electrodialysis
- C. electrophoresis

D. ultrafiltration

Answer: a,b,c



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135. Coagulation of colloids can be achieved by :

- A. centrifugation
- B. adding electrolyte
- C. change in PH
- D. adding water

Answer: a,b,c,d



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136. which are the properties of colloidal solution ?

- A. Adsorption
- B. Tyndall effect
- C. Flocculation
- D. Depression of freezing point

Answer: b,c



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137. In the aqueous solution of soaps above :

- A. the cations associate to form the aggregates
- B. the anions associate to form the clusters of colloidal dimension
- C. the polar ends of the clusters of colloidal dimension
- D. the non - polar ends (hydrocarbon) ends are directed toward water

Answer: a,b



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138. Amongst the following which is/are correct statement about the metal sulphide sols ?

- A. the sol particles are positively charged due to preferential adsorption of metal ions
- B. the sol particles are negatively charged due to preferential adsorption of sulphide ions
- C. the cations of added electrolytes are effective in causing the coagulation of the sol
- D. the sol is due to both the electric charge and hydration of the particles

Answer: b,c



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139. Emulsion can be destroyed by :

- A. the addition of an emulsifier
- B. electrophoresis with a high potential
- C. freezing
- D. all of these

Answer: b,c



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140. which of the following statement is / are correct for electrophoresis /

- A. Colloidal are uncharged particles and do not migrate towards the electrodes when electric field is applied
- B. In electrophoresis , sol migrates either to the anode or to the cathode depending on the positively or negatively charged sol

C. Electrophoresis is useful for finding the charge on a sol

D. all of these

Answer: c



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141. select the false statement (S) :

A. Brownian motion and Tyndall effect are shown by true solutions

B. sorption process is combinations of adsorption and adsorption process

C. Law Hardy schulze is related with coagultion of a sol

D. Higher is the gold number greater will be the protective power of a colliod

Answer: a,d



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142. select correct statement (s)

- A. lyophobic colloids are used to protect lyophilic colloids
- B. Dehydrating agent is used to coagulation sols
- C. Rubber is obtained by coagulation of latex
- D. sometimes ,the rainfall occurs when two oppositely charged clouds meet

Answer: b,c,d



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143. in which of the followings, effect is / are not observed ?

- A. sugar solution
- B. emulsion

C. Urea solution

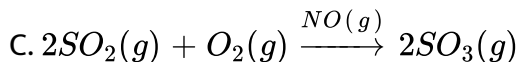
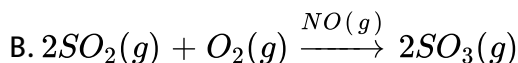
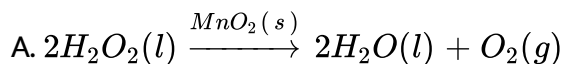
D. solution of proteins

Answer: a,c

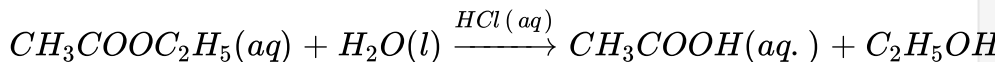


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144. which of the following reactions are examples for heterogeneous catalysis ?



D.



Answer: a,c



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145. select correct statement (s)

- A. the role of a catalyst in a reversible reaction is to allow the equilibrium to be achieved quickly .
- B. Diffusion process is involved in mechanism of heterogenous catalysis process
- C. Hydrolysis of cane sugar is catalysed by H^+
- D. promoters enhance the activity of a catalyst

Answer: a,b,c,d



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146. select correct statement (s)

- A. blood is a colloidal solution
- B. Alum is used in water purification

C. River water is a colloidal solution of clay

D. Colloidal medicines are more effective due to large surface area

Answer: a,b,c,d



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147. Column - I and Column - II contains four entries each. Entries of Column - I are to be matched with some entries of Column - II . One or more than one entries of Column - I may have the matching with the same entries of Column - II.

column-I

column-II

(A) Chemisorption

(P) Exothermic

(B) Physical adsorption

(Q) Endothermic

(C) Desorption

(R) Removal of adsorbed material

(D) Activation of adsorbent

(S) Highly specific in nature



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148. Column - I and Column - II contains four entries each. Entries of Column - I are to be matched with some entries of Column - II . One or more than one entries of Column - I may have the matching with the same entries of Column - II.

column-I

(A) Chemisorption

(B) physisorption

(C) Desorption of a solute on liquid surface

(D) Adsorption of a solute on a liquid

column-II

(P) Not specific and decreases

(Q) sepecific and increases with

(R) Increases the surface tens

(S) Decreases the surface tens



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149. Column - I and Column - II contains four entries each. Entries of Column - I are to be matched with some entries of Column - II . One or more than one entries of Column - I may have the matching with the same entries of Column - II.

column-I

column-II

(A) milk

(P) Aerosol

(B) Dust

(Q) Emulsion

(C) Cheese

(R) Gel

(D) Froth

(S) foam



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150. Column - I and Column - II contains four entries each. Entries of Column -I are to be matched with some entries of Column - II . One or more than one entries of Column -I may have the matching with the same entries of Column - II.

column-I

column-II

(A) Liquid dispersed in gas

(P) foam

(B) Gas dispersed in liquid

(Q) Emulsion

(C) Liquid dispersed in solid

(R) Aerosol

(D) Liquid dispersed in liquid

(S) Gel



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151. Column - I and Column - II contains four entries each. Entries of Column -I are to be matched with some entries of Column - II . One or more than one entries of Column -I may have the matching with the same entries of Column - II.

column-I

column-II

(A) As_2S_3 sol

(P) Lyophobic colloid

(B) sulphur sol

(Q) Macromolecular colloid

(C) starch

(R) Multimolecular colloid

(D) Soap

(S) Associated colloid

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152. Column - I and Column - II contains four entries each. Entries of Column - I are to be matched with some entries of Column - II . One or more than one entries of Column - I may have the matching with the same entries of Column - II.

column-I

column-II

(A) Coagulation

(P) Due to persence of charge

(B) Electrophoresis

(Q) Due to scattering of light

(C) tyndall effect

(R) Due to netralization of charge

(D) Brownian movement

(S) Due to impact of the molecules of the dis-per

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153. Column - I and Column - II contains four entries each. Entries of Column - I are to be matched with some entries of Column - II . One or more than one entries of Column - I may have the matching with the same

entries of Column - II.

column-I

column-II

(A) peptization

(P) preparation of sols

(B) Ultra centrifugation

(Q) Purification of sols

(C) Electrodialysis

(R) preparation of metal sols

(D) Breiding's arc method

(S) movement of ions across the membrane in



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154. each question contain STATEMENT-1(Assertion) and STATEMENT - 2 (reason). examine the statement carefully and work the correct answer according to the instructions given below :

STATEMENT-1: For Adsorption ΔG , ΔH , ΔS all have -ve values.

STATEMENT-2: Adsorption is an exothermic process in which randomness decreases due to force of attraction between adsorbent and adsorbate.

A. if both the statements are TRUE and STATEMENT -2 is the correct explanation of STATEMENT - 1

B. If both the statements are STATEMENT -2 is NOT the correct explanation of STATEMENT -1

C. If STATEMENT -1 is TRUE and STATEMENT is FALSE

D. If STATEMENT -1 is FALSE and STATEMENT -2 is TRUE

Answer: A



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155. each question contain STATEMENT-1(Assertion) and STATEMENT - 2 (reason). examine the statement carefully and work the correct answer according to the instructions given below :

STATEMENT-1: The extent of adsorption of CO_2 is much more higher than of H_2 .

STATEMENT-2: $CO_2(g)$ has higher critical temperature and more van der Waal's force of attraction as compared to $H_2(g)$.

A. if both the statement are TRUE and STATEMENT -2 is the correct explanation of STATEMENT - 1

- B. If both the statement are STATEMENT -2 is NOT the correct explanation of STATEMENT -1
- C. If STATEMENT -1 is TRUE and STATEMENT is FALSE
- D. If STATEMENT -1 is FALSE and STATEMENT -2 is TRUE

Answer: A



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156. each question contain STATEMENT-1(Assertion) and STATEMENT - 2 (reason). examine the statement carefully and work the correct answer according to the instructions given below :

STATEMENT - 1 is False and STATEMENT - 2 is TRUE
STATEMENT-1: In adsorption, the molecules of a substance are uniformly distributed throughout the body of other substance.

STATEMENT-2: In some cases, both absorption and adsorption takes place simultaneously.

- A. if both the statement are TRUE and STATEMENT -2 is the correct explanation of STATEMENT - 1
- B. If both the statement are STATEMENT -2 is NOT the correct explanation of STATEMENT -1
- C. If STATEMENT -1 is TRUE and STATEMENT is FALSE
- D. If STATEMENT -1 is FALSE and STATEMENT -2 is TRUE

Answer: B



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157. each question contain STATEMENT-1(Assertion) and STATEMENT - 2 (reason). examine the statement carefully and work the correct answer according to the instructions given below :

STATEMENT-1: More heat evolved in physisorption than in chemisorption.

STATEMENT-2: Molecules of adsorbate and adsorbent are held by van der Waal's forces in physisorption and by chemical bonds in chemisorption.

- A. if both the statement are TRUE and STATEMENT -2 is the correct explanation of STATEMENT - 1
- B. If both the statement are STATEMENT -2 is NOT the correct explanation of STATEMENT -1
- C. If STATEMENT -1 is TRUE and STATEMENT is FALSE
- D. If STATEMENT -1 is FALSE and STATEMENT -2 is TRUE

Answer: D



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158. each question constain STATEMENT-1(Assertion) and STATEMENT - 2 (reason). examine the statement carefully and work the correct answer accoridng to the instructions given below :

STATEMENT-1: Colloidal solution is electrically neutral.

STATEMENT-2: Due to similar nature of the charge carried by the dispersed phase particles, they repel each other and do not combine to form bigger particles.

- A. if both the statement are TRUE and STATEMENT -2 is the correct explanation of STATEMENT - 1
- B. If both the statement are STATEMENT -2 is NOT the correct explanation of STATEMENT -1
- C. If STATEMENT -1 is TRUE and STATEMENT is FALSE
- D. If STATEMENT -1 is FALSE and STATEMENT -2 is TRUE

Answer: B



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159. each question contain STATEMENT-1(Assertion) and STATEMENT - 2 (reason). examine the statement carefully and work the correct answer according to the instructions given below :

STATEMENT-1: Soap and detergent are macro-molecular colloids.

STATEMENT-2: Soap and detergent are molecules of large size.

- A. if both the statement are TRUE and STATEMENT -2 is the correct explanation of STATEMENT - 1
- B. If both the statement are STATEMENT -2 is NOT the correct explanation of STATEMENT -1
- C. If STATEMENT -1 is TRUE and STATEMENT is FALSE
- D. If STATEMENT -1 is FALSE and STATEMENT -2 is TRUE

Answer: D



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160. each question constain STATEMENT-1(Assertion) and STATEMENT - 2 (reason). examine the statement carefully and work the correct answer accoridng to the instructions given below :

STATEMENT-1: Micelles are formed by surfactant molecules above the critical micelle concentartion (CMC).

STATEMENT-2: The conductivity of a solution having surfactant molecules decrease sharply at the CMC.

- A. if both the statement are TRUE and STATEMENT -2 is the correct explanation of STATEMENT - 1
- B. If both the statement are STATEMENT -2 is NOT the correct explanation of STATEMENT -1
- C. If STATEMENT -1 is TRUE and STATEMENT is FALSE
- D. If STATEMENT -1 is FALSE and STATEMENT -2 is TRUE

Answer: A



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161. each question contain STATEMENT-1(Assertion) and STATEMENT - 2 (reason). examine the statement carefully and work the correct answer according to the instructions given below :

STATEMENT-1: The micelle formed by sodium stearate in water has COO^- groups at the surface.

STATEMENT-2: Surface tension of water is reduced by the addition of stearate.

- A. if both the statement are TRUE and STATEMENT -2 is the correct explanation of STATEMENT - 1
- B. If both the statement are STATEMENT -2 is NOT the correct explanation of STATEMENT -1
- C. If STATEMENT -1 is TRUE and STATEMENT is FALSE
- D. If STATEMENT -1 is FALSE and STATEMENT -2 is TRUE

Answer: B



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162. each question constain STATEMENT-1(Assertion) and STATEMENT - 2 (reason). examine the statement carefully and work the correct answer accoridng to the instructions given below :

STATEMENT-1: Protein, starch are lyophilic colloids.

STATEMENT-2: They have strong interaction with the dispersion medium.

- A. if both the statement are TRUE and STATEMENT -2 is the correct explanation of STATEMENT - 1
- B. If both the statement are STATEMENT -2 is NOT the correct explanation of STATEMENT -1
- C. If STATEMENT -1 is TRUE and STATEMENT is FALSE
- D. If STATEMENT -1 is FALSE and STATEMENT -2 is TRUE

Answer: A



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163. each question constain STATEMENT-1(Assertion) and STATEMENT - 2 (reason). examine the statement carefully and work the correct answer accoridng to the instructions given below :

STATEMENT-1: Colloidal AgI is prepared by adding KI in slight excess to $AgNO_3$ solution, the and particles migrate toward cathode under electric field.

STATEMENT-2: Colloidal particles adsorb ions and thus becomes electrically neutral.

- A. if both the statement are TRUE and STATEMENT -2 is the correct explanation of STATEMENT - 1
- B. If both the statement are STATEMENT -2 is NOT the correct explanation of STATEMENT -1
- C. If STATEMENT -1 is TRUE and STATEMENT is FALSE
- D. If STATEMENT -1 is FALSE and STATEMENT -2 is TRUE

Answer: C



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164. each question contain STATEMENT-1(Assertion) and STATEMENT - 2 (reason). examine the statement carefully and work the correct answer according to the instructions given below :

STATEMENT-1: When SnO_2 is reacted with NaOH , then its sol particles

are attracted towards cathode.

STATEMENT-2: When SnO_2 is reacted with NaOH , then it gives SnO_3^{2-} which is adsorbed by SnO_2 , so it is negatively charged sol.

- A. if both the statement are TRUE and STATEMENT -2 is the correct explanation of STATEMENT - 1
- B. If both the statement are STATEMENT -2 is NOT the correct explanation of STATEMENT -1
- C. If STATEMENT -1 is TRUE and STATEMENT is FALSE
- D. If STATEMENT -1 is FALSE and STATEMENT -2 is TRUE

Answer: D



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165. each question contain STATEMENT-1(Assertion) and STATEMENT - 2 (reason). examine the statement carefully and work the correct answer according to the instructions given below :

STATEMENT-1: For coagulation of positively charged sols, $[Fe(CN)_6]^{4-}$ ion has higher coagulating power than that of PO_4^{3-} , SO_4^{2-} , Cl^-

STATEMENT-2: The size of colloidal particle are larger than the size of true solution particles.

- A. if both the statement are TRUE and STATEMENT -2 is the correct explanation of STATEMENT - 1
- B. If both the statement are STATEMENT -2 is NOT the correct explanation of STATEMENT -1
- C. If STATEMENT -1 is TRUE and STATEMENT is FALSE
- D. If STATEMENT -1 is FALSE and STATEMENT -2 is TRUE

Answer: A



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166. each question constain STATEMENT-1(Assertion) and STATEMENT - 2 (reason). examine the statement carefully and work the correct answer

according to the instructions given below :

STATEMENT-1: Dispersed phase particles of colloidal solution cannot pass through ultra -filter paper.

STATEMENT-2: The size of colloidal particles are larger than the size of true solution particles.

A. if both the statement are TRUE and STATEMENT -2 is the correct explanation of STATEMENT - 1

B. If both the statement are STATEMENT -2 is NOT the correct explanation of STATEMENT -1

C. If STATEMENT -1 is TRUE and STATEMENT is FALSE

D. If STATEMENT -1 is FALSE and STATEMENT -2 is TRUE

Answer: A



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167. When a finely divided active carbon or clay is stirred into a dilute solution of a dye, we observe that the intensity of colour in the solution is decreased on account of

- A. if both the statement are TRUE and STATEMENT -2 is the correct explanation of STATEMENT - 1
- B. If both the statement are STATEMENT -2 is NOT the correct explanation of STATEMENT -1
- C. If STATEMENT -1 is TRUE and STATEMENT is FALSE
- D. If STATEMENT -1 is FALSE and STATEMENT -2 is TRUE

Answer: A



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168. Silica gel is commonly used as :

- A. if both the statement are TRUE and STATEMENT -2 is the correct explanation of STATEMENT - 1
- B. If both the statement are STATEMENT -2 is NOT the correct explanation of STATEMENT -1
- C. If STATEMENT -1 is TRUE and STATEMENT is FALSE
- D. If STATEMENT -1 is FALSE and STATEMENT -2 is TRUE

Answer: A



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169. each question contain STATEMENT-1(Assertion) and STATEMENT - 2 (reason). examine the statement carefully and work the correct answer according to the instructions given below :

STATEMENT-1: ZSM-5 is a type of zeolites used as a catalyst in petrochemical industries.

STATEMENT-2: Zeolites are microporous aluminosilicates three

dimensional network silicates in which some silicon atoms are replaced by aluminium atoms.

- A. if both the statement are TRUE and STATEMENT -2 is the correct explanation of STATEMENT - 1
- B. If both the statement are TRUE and STATEMENT -2 is NOT the correct explanation of STATEMENT -1
- C. If STATEMENT -1 is TRUE and STATEMENT is FALSE
- D. If STATEMENT -1 is FALSE and STATEMENT -2 is TRUE

Answer: B



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170. each question constain STATEMENT-1(Assertion) and STATEMENT - 2 (reason). examine the statement carefully and work the correct answer accoridng to the instructions given below :

STATEMENT-1: Lyophilic colloids are called as reversible sols.

STATEMENT-2: Lyophilic sols are extensively hydrated.

- A. if both the statement are TRUE and STATEMENT -2 is the correct explanation of STATEMENT - 1
- B. If both the statement are STATEMENT -2 is NOT the correct explanation of STATEMENT -1
- C. If STATEMENT -1 is TRUE and STATEMENT is FALSE
- D. If STATEMENT -1 is FALSE and STATEMENT -2 is TRUE

Answer: B



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171. each question constain STATEMENT-1(Assertion) and STATEMENT - 2 (reason). examine the statement carefully and work the correct answer accoridng to the instructions given below :

STATEMENT-1: A catalyst is more effective in finely divided form.

STATEMENT-2: Finely divided form has more surface area.

- A. if both the statement are TRUE and STATEMENT -2 is the correct explanation of STATEMENT - 1
- B. If both the statement are STATEMENT -2 is NOT the correct explanation of STATEMENT -1
- C. If STATEMENT -1 is TRUE and STATEMENT is FALSE
- D. If STATEMENT -1 is FALSE and STATEMENT -2 is TRUE

Answer: A



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172. each question contain STATEMENT-1(Assertion) and STATEMENT - 2 (reason). examine the statement carefully and each question contain STATEMENT-1(Assertion) and STATEMENT - 2 (reason). examine the statement carefully and work the correct answer according to the

instructions given below :

STATEMENT-1: Sky appears blue in colour.

STATEMENT-2: Colloidal particles of dust along with water suspended in air scatter blue light.

A. if both the statement are TRUE and STATEMENT -2 is the correct explanation of STATEMENT - 1

B. If both the statement are STATEMENT -2 is NOT the correct explanation of STATEMENT -1

C. If STATEMENT -1 is TRUE and STATEMENT is FALSE

D. If STATEMENT -1 is FALSE and STATEMENT -2 is TRUE

Answer: A



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173. each question constain STATEMENT-1(Assertion) and STATEMENT - 2 (reason). examine the statement carefully and work the correct answer

according to the instructions given below :

STATEMENT-1: The conversion of fresh precipitate to colloidal state is called peptization.

STATEMENT-2: It is caused by addition of common ions.

A. if both the statement are TRUE and STATEMENT -2 is the correct explanation of STATEMENT - 1

B. If both the statement are STATEMENT -2 is NOT the correct explanation of STATEMENT -1

C. If STATEMENT -1 is TRUE and STATEMENT is FALSE

D. If STATEMENT -1 is FALSE and STATEMENT -2 is TRUE

Answer: B



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174. each question contain STATEMENT-1(Assertion) and STATEMENT - 2 (reason). examine the statement carefully and work the correct answer

according to the instructions given below :

STATEMENT-1: Colloidal solutions are stable but colloidal particles do not settle down.

STATEMENT-2: Brownian movement counters the force of gravity act on colloidal particles

A. if both the statement are TRUE and STATEMENT -2 is the correct explanation of STATEMENT - 1

B. If both the statement are STATEMENT -2 is NOT the correct explanation of STATEMENT -1

C. If STATEMENT -1 is TRUE and STATEMENT is FALSE

D. If STATEMENT -1 is FALSE and STATEMENT -2 is TRUE

Answer: A



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175. each question contain STATEMENT-1(Assertion) and STATEMENT - 2 (reason). examine the statement carefully and work the correct answer according to the instructions given below :

STATEMENT-1: A colloid gets coagulated by addition of an electrolyte.

STATEMENT-2: Coagulation depends on the valence and sign of the charge of the coagulant ion.

A. if both the statements are TRUE and STATEMENT -2 is the correct explanation of STATEMENT - 1

B. If both the statements are STATEMENT -2 is NOT the correct explanation of STATEMENT -1

C. If STATEMENT -1 is TRUE and STATEMENT is FALSE

D. If STATEMENT -1 is FALSE and STATEMENT -2 is TRUE

Answer: B



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176. each question contain STATEMENT-1(Assertion) and STATEMENT - 2 (reason). examine the statement carefully and work the correct answer according to the instructions given below :

STATEMENT-1: At pH of isoelectric point, the sol particle of amino acids neither move towards anode nor towards cathode.

STATEMENT-2: Because at the isoelectric point, the concentration of conjugate base and conjugate acid of the Zwitter ions becomes equal and so one's charge is counterbalanced by others.

- A. if both the statement are TRUE and STATEMENT -2 is the correct explanation of STATEMENT - 1
- B. If both the statement are STATEMENT -2 is NOT the correct explanation of STATEMENT -1
- C. If STATEMENT -1 is TRUE and STATEMENT is FALSE
- D. If STATEMENT -1 is FALSE and STATEMENT -2 is TRUE

Answer: A



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177. each question contain STATEMENT-1(Assertion) and STATEMENT - 2 (reason). examine the statement carefully and work the correct answer according to the instructions given below :

STATEMENT-1: Gold sol is multimolecular and hydrophobic in nature.

STATEMENT-2: Gold sol is prepared by Bredig's arc method.

- A. if both the statement are TRUE and STATEMENT -2 is the correct explanation of STATEMENT - 1
- B. If both the statement are STATEMENT -2 is NOT the correct explanation of STATEMENT -1
- C. If STATEMENT -1 is TRUE and STATEMENT is FALSE
- D. If STATEMENT -1 is FALSE and STATEMENT -2 is TRUE

Answer: B



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178. How many colloidal systems exist in nature?



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179. How many colloidal systems exist in nature in which liquid is a dispersed phase?



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180. How many colloidal systems exist in nature in which gas is dispersed phase?



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181. What is the minimum diameter (in nm) of colloidal particles?



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182. For soaps critical micelle concentration (CMC) is 10^{-x} (min) to 10^{-y} (max.) mol/L what is the value of x?



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Level 3 Assertion Reason Type Questions

1. each question contain STATEMENT-1(Assertion) and STATEMENT - 2 (reason). examine the statement carefully and work the correct answer according to the instructions given below :

STATEMENT-1: Size of suspension particles are smaller than colloidal particles.

A. if both the statement are TRUE and STATEMENT -2 is the correct explanation of STATEMENT - 1

B. If both the statement are STATEMENT -2 is NOT the correct explanation of STATEMENT -1

C. If STATEMENT -1 is TRUE and STATEMENT is FALSE

D. If STATEMENT -1 is FALSE and STATEMENT -2 is TRUE

Answer: C



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