CHEMISTRY

BOOKS - NARENDRA AWASTHI

SURFACE CHEMISTRY

Exercise

1. The size of particles in suspension , true 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 particless ?

A. $10^{-4}mto10^{-10}m$

B. $10^{-5}mto10^{-7}m$

C. $10^{-9}mto10^{-12}m$

D. $10^{-6}mto10^{-9}m$

Answer: d

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3. Which are not purely surface phenomena?

A. Adsorption , surface tension

B. surface tension , viscosity

C. Absorption , viscostity

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 forcess 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 enthaply 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. Enthaply 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 ?

A. $H_2(g)$

B. $He(g)$

C. $CO(g)$

D. $CO_2(g)$

Answer: d

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

A. $H_2 > Co_2 > NH_3$

B. $NH_3 > H_2 > CO_2$

C. $NH_3 > CO_2 > H_2$

D. $CO_2 > NH_2 > H_2$

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 phenmena

D. both are surface phenomena

Answer: b

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17. Adsorption is multillayar in case of :

A. physical adsorption

B. chemisoption

C. both (A) and (B)

D. none of these

Answer: a

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18. What is physical adsorption.

A. chemical adsoption

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 neither very low nor very high

A. temperture is low

B. temperature is high

C. temperature is very high

D. larger charcol 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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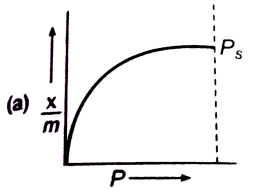
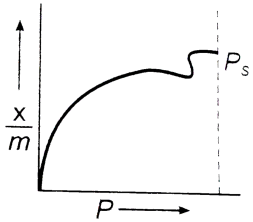
21. which of the following adsorption isotherms represents the adsorption of a gas by a soild involvey multillayers of formation ? (p_s= saturation pressure)

A.



B.



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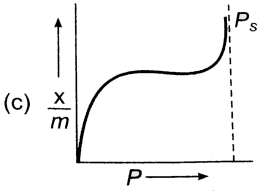
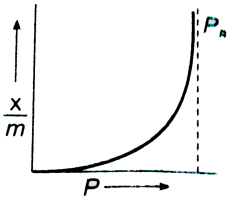


D.



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 sloid gives a straight 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 chemisoption 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 adsoption 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. $0.19Lg^{-1}$

B. $1Lg^{-1}$

C. $2.1Lg^{-1}$

D. none of these

Answer: c

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27. A catalytic poison renders the catalyst ineffective beacause :

A. It is perferentiallly 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 fucntion 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 : Zeolites, Enzymes, Platinum, Zeigler-Natta catalyst.

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. idenify the correct statement regarding enzmes :

A. Enzymes are specific biological catalysis that normally works at high temperauture

B. Enzymes are normally heterogeneous catalysis which decrease the reaction rate

C. Enzymes are specific biological catalysis with low molar masses

D. Enzymes ae 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 : electrical behaviour, particle nature, particle size, solubility.

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 perparing 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 of the following is a lyophillic 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 assiciated 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 of lyophilic coloidal sols :

A. viscostiy 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 readly 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. soild in a liquid

Answer: a

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

A. molecular size

B. nature of the particles

C. suface 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 in not a gel ?

A. Cheese

B. jellies

C. Curd

D. Milk

Answer: d

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50. Discuss cleansing action of soap by micelle formation.

A. non - polar tails of soap molecules dissolve in grease

B. oil and grease dissploves 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 :

A. H^+

B. S^{2-}

C. OH^-

D. O^{2-}

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. postivie 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 ?

A. KNO_3

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

C. Na_3PO_4

D. $MgCl_2$

Answer: d

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55. the minimum amount of an electrolyrte 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. collodial particles in a sol can be coagulated by :

A. heating

B. adding an electrolyte

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. purifiction of colloids

D. impact of molecules of the dispersion medium on the colloidal particles

Answer: b

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59. hardy - 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 ? $NaCl, MgSO_4, Al_2(SO_4)_3, K_4\left[Fe(CN)_6\right]$.

A. NaCl

B. $MgSO_4$

C. $Al_2(SO_4)_3$

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

Answer: c

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61. The ability of ion to bring about coagulation of a given collidal solution depends upon: its size, the magnitude of its charge only, the sign of its charge alone, both magnitude and sign of its charge.

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

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62. An emulsifying agent is a substance which : stabilies the emulsion, de-stabilize the emulsion, coagulates the emulsion, break the interfacial film between suspended particle and medium.

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

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63. colloidal solution of gold is prepared by :

A. colloidal mill

B. double decopostion method

C. Breding 's method

D. peptization

Answer: c

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64. The formation of a colloidal from suspension is: peptisation, condenstion, sedimentation, fragmentation.

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. Which of the following has minimum Flocculation value for positively charged sol?

A. Cl^-

B. SO_4^{2-}

C. PO_4^{3-}

D. $\left[Fe(CN)_6\right]^{-4}$

Answer: d

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

A. PO_4^{3-}

B. SO_4^{2-}

C. Ca^{2+}

D. Al^{3+}

Answer: a

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68. Artifical 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 ?

5 to 7, 6 to 8, 7 to 9, 8 to 9.

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 - osmosic is observed when :

A. disperion medium partcles begins 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. postive

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. What name is given to the zig-zag motion of the colloidal particles?

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? Adsorption, Tyndall effect, Flocculation, Paramagnetism.

A. Adsorption

B. Tyndall effect

C. Flocculation

D. Paramagntism

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 pf 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. presence of clouds

Answer: c

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80. the apparatus used to coagulate carbon particles from smoke is called : cottrel smoker, cottrell precipitator, cottell absorber, none of these.

A. cottrel smoker

B. cottrell precipitator

C. cottell absorber

D. none of these

Answer: b

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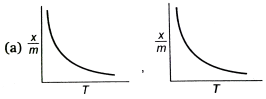
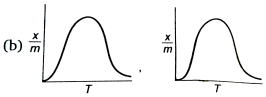
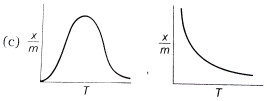
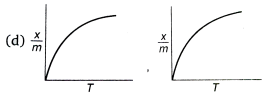
81. select correct adsorption isobars for chemisoption and physisoption respectivly ,

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

A. 

B. 

C. 

D. 

Answer: c

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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 multillayerd

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. Lyophoilic sols are self stabilized

C. Lyphobic sols are obtained from inocganic 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 disperesd 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. Lyophillic colloids are more stable than lyophobic colloids. Explain.

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 :

$K_2SO_4 \quad CaCl_2 \quad Na_3PO_4 \quad AlCl_3 \quad : \quad I < II < III < IV,$

$I = III < II < IV, II < IV < I < II, II < III < IV < I\,.$

A. $I < II < III < IV$

B. $I = III < II < IV$

C. $II < IV < I < II$

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 electroyte increases the conductivity of the emulsion

Answer: b

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90. Under the influemce 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. $NaCl > Na_2SO_4 > Na_3PO_4$

b. $Na_2SO_4 > Na_3PO_4 > NaCl$

c. $Na_3PO_4 > Na_2SO_4 > NaCl$

d. $Na_2SO_4 > NaCl > Na_3PO_4$

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. condenstion of metal

C. disoersion as well as condenstion

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 rasie 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 ions undergo association to form clusters

B. the viscosity of solution increases abruptly

C. subtances like grase , fat , etc. dissolve colloidally

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 interfacil surface tension between oil and water

B. Basic pricniple of peptization is reverse of coagulation

C. soap and detergent used as emulsifers

D. Lyophilic sols need stabilizing agent

Answer: d

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99. smoke precipitator work on the principal 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 coagultion value of the following electrolyte for the coagultion of ferric hydroxide sol ?

$(I)Na_3PO_4(II)KCl(III)K_2SO_4(IV)K_4\left[Fe(CN)_6\right]$

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 ? 5, 10, 100, none of these.

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 solution after adsorption is 0.5 M. what is the amount of acetic acid adsorbed per gram of carbon ? 0.6 g, 0.3 g, 1.2 g, none of these.

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 $\left(C_{12}H_{25}SO_4^- Na^+\right)$ solution becomes colloidal sol at a concentration of 10^{-3}M . On an average 10^{13} colloidal partcles are present in $1mm^3$. What is the average number of ions which are contained by one colloidal particle (micelle)? 6×10^7, 10, 60, none of these.

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 are 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 a ammonia molecules is $10^{-8}cm$. $7.46L$, $0.33L$, $44.\ 8L$, $23.5L$.

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 $1.30 cm^3 g^{-1}$ of the gel. The area occupied by a nitrogen molecule is $0.16 nm^2$. Find out the no. of surface sites occupied per molecule of N_2. $5.568 m^2 g^{-1}, 3.34 m^2 g^{-1}$, $1.6 m^2 g^{-1}$, none of these .

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

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

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

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 evloved from sites and collected at 0.03 atm and 300 K in a small vessel of $2.46 cm^3$.

no. of sites available is 5.4×10^{16} per cm^2 and surface area is $1000 cm^2$. find out the no. of suface sites occupied per molecule of H_2. 1, 2, 3, none of these.

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 chacoal sample is $1.6 g / m^3$. What is the volume of the CH_4 gas adsorbed per gram of the adsorbent at 608 torr and $27^\circ C$? $125 L / g, 16.25 mL / g, 26 mL / g$, none of these .

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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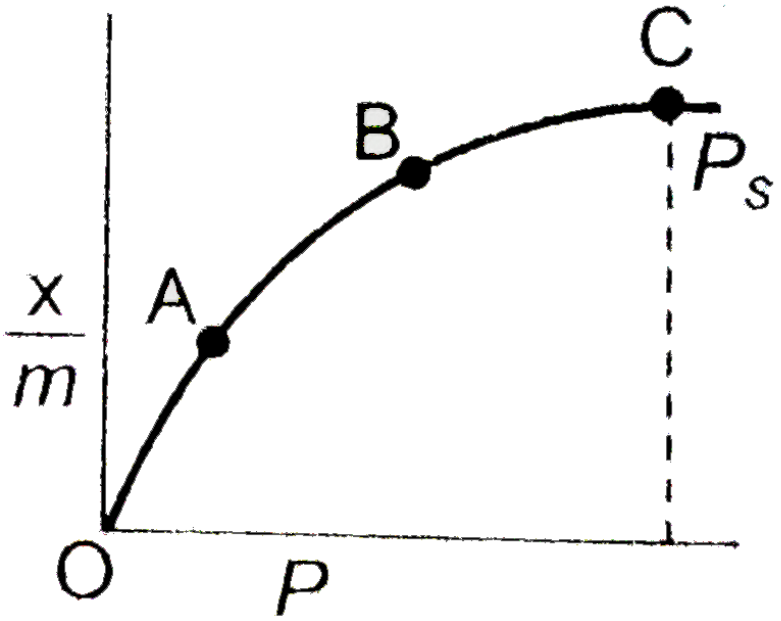
110. A group between x/m and the presure P of the gas at a constant temperature is called adsorption siotherm. Where x is the no. of moles of the adsorbate and m is the mass of the adsorbent. adsoption isotherms of different shaopes have been experimentally observed .. According to frundlich adosroption isthem,

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

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

Inn the given isotherm select the incorrect statement :



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

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 availble for adsorption

D.

Answer: b

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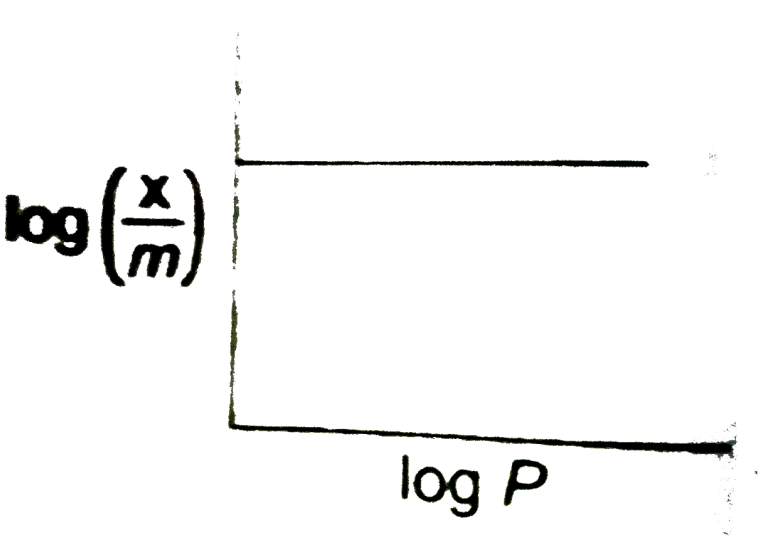
111. A group between x/m and the presure P of the gas at a constant temperature is called adsorption siotherm. Where x is the no. of moles of the adsorbate and m is the mass of the adsorbent. adsoption isotherms of different shaopes have been experimentally observed .. According to frundlich adosroption isthem,

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

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

Adsoption isothem 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

Watch Video Solution

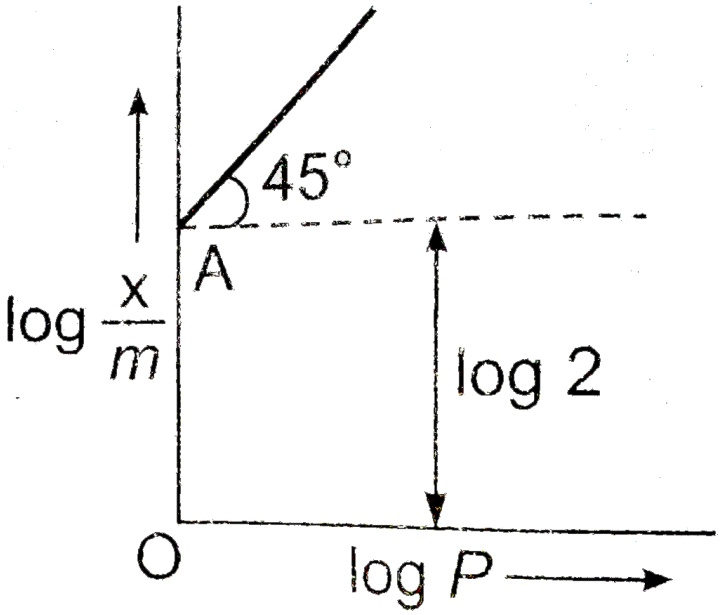
112. A group between x/m and the presure P of the gas at a constant temperature is called adsorption siotherm. Where x is the no. of moles of the adsorbate and m is the mass of the adsorbent. adsoption isotherms of different shaopes have been experimentally observed .. According to frundlich adosroption isthem,

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

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

graph between log $\left(\frac{x}{m}\right)$ and log P is a straight line a t 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 mLof 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 lyophillic colloid, the greater is the protective power.

On addition of one mL of sloution of 10 % NaCl to 10 mL. of red gold sol in presence of 0.025 g of starch the coagultion is just prevented . the gold number of starch is : 0.025, 0.25, 2.5, 25.

A. 0.025

B. 0.25

C. 2.5

D. 25

Answer: d

Watch Video Solution

114. the protective power of the lyophilic colloids es 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 mLof 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 lyophillic colloid, the greater is the protective power.

which of the following statement (S) is / are correct? higher the gold number, more protective power of colloid, Lower the gold number, more protective power, Higher the coagulation value, more the coagulation power, lower the coagulation value, higher the coagulation power.

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

Watch Video Solution

115. the protective power of the lyophilic colloids es expressed in terms of gold number, a term introduced by Zsigmondy. Gold number is the number of mili - 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 lyophillic colloid, the greater is the protective power.

gold number given an indication of : protective nature of colloids, purity of gold in suspension, the charge on a colloidal solution of gold, gram of gold per litre of solution.

A. protective nature of colloids

B. purity of gold in suspension

C. the charge on a colloidal soultion of gold

D. gram of gold per litre of soultion

Answer: a

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

therefroe higher is the coagulatings power of effective ion, smaller will be the coagultion value of the electrolyte.

coagultion value $\propto = \frac{1}{\text{coagulating power}}$

the coagulation values of differnt electrolytes are different . this behavious can be easily uderstood by Harby - schulze rule which states.

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

which one had the highest coagulating powe?

A. K^+

B. Ca^{2+}

C. Al^{3+}

D. Sn^{4+}

Answer: d

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

A. K_2SO_4

B. Na_3PO_4

C. $AlCl_3$

D. $CaCl_3$

Answer: c

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118. coagultion is the process by which the dispersed phase of a colloid is made to aggregate and thereby separtate from the continuous phase.

The minimum concetration of an eletrolyte in milli-moles per litre of the electrolyte solution which required to cause the caogultion of colloidal sol is called coagution value .

therefroe higher is the coagulatings power of effective ion, smaller will be the coagultion 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 sigh

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 mili-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 to the sol can be caused by : heating, adding electrolyte, adding oppositely charged sol, all of these.

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 emulsifiying agent usually has

to added to stabilize the product. This emulsifying agent amy be a soap or other sufactant (surface active) sepcies 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 emplyoyed 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. only statement 1 is correct

B. only statement 2 is correct

C. both are correct

D. none of these

Answer: c

Watch Video Solution

121. Emulsions are normally prepared by shaking the two components together vigorously although some kind of emulsifiying agent usually has to added to stabilize the product. This emulsifying agent amy be a soap or other sufactant (surface active) sepcies 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 emplyoyed 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 adsoption is due to stronger interaction or bond formation

Answer: b,d

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123. select the correct statement (s) : adsorption is a non - spontaneous process, surface energy deceases during the process of adsorption, adsorption takes place with decrease of entropy, in general adsorption is exothermic process.

A. adsorption is a non - spontyaneous process

B. surface energy deceases during the process of adsorption

C. adsorption takes place with decrease of entropy

D. in general adsoption is exothermic process

Answer: b,c,d

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124. select the correct statement (s): physisorption is favored by low temperature chemisorption is favored by very high temperature because the process is endothermic chemisorption increase with increases in temperature owing to high activation energy, Oxygen adsorbed by charcoal can be desorbed by lowing pressure and temperature.

A. physisorption is favoured by low temperature

B. chemisorption is favoured by very high temperauture becouse the process is endothemic

C. chemisorption increase with increases in temperature owing to high activation energy

D. Oxygen adsorbed by charcol can be desorbed by lowing pressure and temperture

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 statement are true ? At low pressures $\frac{x}{m}$ varies proportionately with P, At moderate pressures, $\frac{x}{m}$ varies less than proportionately with P, At high pressure , $\frac{x}{m}$ becomes independent of P, at high pressure , $\frac{x}{m}$ varies more than proportionately with P.

A. At low pressures $\frac{x}{m}$ varioes proportionately with P

B. At moderate pressures, $\frac{x}{m}$ varies less than proportiontely with P

C. At high pressure , $\frac{x}{m}$ becomes inderpendent of P

D. at high pressue , $\frac{x}{m}$ varies more than proportiontely with P

Answer: a,c,d

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126. which of the following are colloids ? Sulphur sol, starch, Gold sol, soap solution.

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 lyophobic sol or which of the following is a lyophilic sol?

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 lyophilic 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. 4. Its viscosity is equal to that of water

Answer: b,c

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129. select the correct statement (s) : Benzene is dispersed phase in benzosol, sols are irreversible and not so stable, sol can be produced by double decomposition, when a solution of sulphur in alcoholic is added in excess of water a sol of alcohol is formed.

A. Benzene is dispersed phase in benzosol

B. sols are irreversible and not so table

C. sol can be produced by double decompostion

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. 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 mili-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 to the sol can be caused by : heating, adding electrolyte, adding oppositely charged sol, all of these.

A. boiling

B. persistent dialysis

C. adding electroyte

D. adding oppositely charged sol

Answer: a,b

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133. select the correct statement (s) : A sol is prepared by addition of excess of $AgNO_3$ solution in Kl solution . The charge likely to develop on colloidal particle is positive, the effects o pressure on physical adsorption is high if temperature is low, Ultracentrifugation process is used for

preparation of colloids, Gold number is the index for extent of gold plating done.

A. A sol is prepared by addition of excess of $AgNO_3$ solution in Kl solution . The charge likely to develop on colloidal particle is positive

B. the effects o pressure on physical adsortion is high if temperature is low

C. Ultracentrifugation process is used for pegaration 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 CMC : the cations associate to form the aggregates , the anions associate to from the clusters of colloidal dimension , the polar ends forming the clusters are directed towards water , the non - polar ends (hydrocarbon) ends are directed toward water.

A. the cations associate to form the aggregates

B. the anions associate to from the clusters of colloidal dimension

C. the polar ends forming the clusters are directed towards water

D. the non - polar ends (hydrocarbon) ends are directed toward water

Answer: a,b

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138. Among the following which is/are correct statement about the metal sulphide sols ? the sol particles are positively charged due to preferential adsorption of metal ions, the sol particles are negatively charged due to preferential adsorption of sulphide ions, the cations of added electrolytes are effective in causing the coagulation of the sol, the sol is due to both the electric charge and hydration of the particles.

A. the sol particles are positively charged due to preferential adsorption of metal ions

B. the sol partcles are negatively charged due to preferntial 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 detroyed by : the addition of an emulsifier, electrophoresis with a high potential, freezing, all of these.

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 : Colloidal are uncharged particles and do not migrate towards the electrodes when electric field is applied, In electrophoresis , sol migrates either to the anode or to the cathode depending on the positively or negatively charged sol, Electrophoresis is useful for finding the charge on a sol, all of these.

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 denpending on the positivily 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) : Brownian motion and Tyndall effect are shown by true solutions, sorption process is combinations of adsorption and absorption process, Law Hardy schulze is related with coagulation of a sol, Higher is the gold number greater will be the protective power of a colloid.

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) : lyophobic colloids are used to protect lyophillic colloids, Dehydrating agent is used to coagulation sols, Rubber is obtained by coagulation of latex, sometimes ,the rainfall occurs when two oppositely charged clouds meet.

A. lyophobic colloids are used to protect lyophilic colloids

B. Dehydrating agent is used to coagultion sols

C. Rubber is obtained by coagultaion of latex

D. sometimes ,the rainfall occurs when two opositely charged clods meet

Answer: b,c,d

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143. in which of the followings, Tyndall effect is / are not observed ? sugar solution, emulsion, Urea solution, solution of proteins.

A. sugar solution

B. emulsion

C. Urea solution

D. solution of proteins

Answer: a,c

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144. which of the following reations are examples for heterogeneous catalysis ? $2H_2O_2(l) \xrightarrow{MnO_2(s)} 2H_2O(l) + O_2(g)$, $2SO_2(g) + O_2(g) \xrightarrow{NO(g)} 2SO_3(g)$, $2SO_2(g) + O_2(g) \xrightarrow{NO(g)} 2SO_3(g)$, $CH_3COOC_2H_5(aq) + H_2O(l) \xrightarrow{HCl(aq)} CH_3COOH(aq.) + C_2H_5OH(aq.)$

.

A. $2H_2O_2(l) \xrightarrow{MnO_2(s)} 2H_2O(l) + O_2(g)$

B. $2SO_2(g) + O_2(g) \xrightarrow{NO(g)} 2SO_3(g)$

C. $2SO_2(g) + O_2(g) \xrightarrow{NO(g)} 2SO_3(g)$

D.

$$CH_3COOC_2H_5(aq) + H_2O(l) \xrightarrow{HCl(aq)} CH_3COOH(aq.) + C_2H_5OH$$

Answer: a,c

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145. select correct statement (s) : the role of a catalyst in a reversible reaction is to allow the equilibrium to be achieved quickly , Diffusion process is involved in mechanism of heterogenous catalysis process , Hydrolysis of cane sugar is catalysed by H^+ , promotors enhance the activity of a catalyst.

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. promotors enhane the acitvity of a catayst

Answer: a,b,c,d

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146. select correct statement (s) : blood is a colloidal solution, Alum is used in water purification, River water is a colloidal solution of clay, Colloidal medicines are more effective due to large surface area.

A. blood is a colloidal solution

B. Alum is used in water purifiaction

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) Endoothermic
(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 emtries 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) Not specific and decreases
(B) physisorption	(Q)sepecific and increases wit
(C) Desorption of a solute on liquid surface	(R) Increases the surface tens
(D)Adsorption of a solute on a liquid	(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 emtries 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 emtries 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) Macromolecualr colloid
(C) starch	(R) Multimolecular colloid
(D) Soap	(S) Associated colloid

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152. Column - I and Column - II contains four emtries 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) Coagultation	(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 emtries 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) perparation of metal sols
(D) Breding's arc method	(S) movement of ions acress the membrane i

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154. 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 :

STATEMEN1: For Adsorption ΔG, ΔH, ΔS all have -ve values.

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

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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155. 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: 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 $H_2(g)$. if both the statement are TRUE and STATEMENT -2 is the correct explanation of STATEMENT - 1 , If both the statement FALSE are STATEMENT -2 is NOT the correct explanation of STATEMENT -1 , If STATEMENT -1 is TRUE and STATEMENT - 2 is FALSE , If STATEMENT -1 is FALSE and STATEMENT -2 is TRUE.

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

STAMENT-1: More heat evolved in physiorpiton 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 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: Soap and detergent are macro-molecular colloids.

STATEMENT-2: Soap and dtergent 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 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: The micelle formed by sodium sterate in water hasj- COO^- groups at the surface.

STATEMENT-2: Surface tension of water is reduced by the addition of sterate. if both the statement are TRUE and STATEMENT -2 is the correct explanation of STATEMENT - 1 , If both the statement are TRUE, STATEMENT -2 is NOT the correct explanation of STATEMENT -1 , If STATEMENT -1 is TRUE and STATEMENT -2 is FALSE , If STATEMENT -1 is FALSE and STATEMENT -2 is TRUE.

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 Agl is prepared by adding Kl 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 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: 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. if both the statement are TRUE and STATEMENT -2 is the correct explanation of STATEMENT - 1 , If both the statement TRUE are STATEMENT -2 is NOT the correct explanation of STATEMENT -1 , If STATEMENT -1 is TRUE and STATEMENT - 2 is FALSE , If STATEMENT -1 is FALSE and STATEMENT -2 is TRUE.

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 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: For coagulation of positively charged sols, $\left[Fe(CN)_6\right]^{4-}$ 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 accoridng 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. 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 : if both the statement are TRUE and STATEMENT -2 is the correct explanation of STATEMENT - 1 , If both the statement are TRUE and STATEMENT -2 is NOT the correct explanation of STATEMENT -1 , If STATEMENT -1 is TRUE and STATEMENT -2 is FALSE, If STATEMENT -1 is FALSE and STATEMENT -2 is TRUE.

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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168. 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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169. 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.

STATENENT-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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170. each question constain STATEMENT-1(Assertion) and STATEMENT - 2 (reason). examine the statement carefully and 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: 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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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 colloid gets coagulated by addition of an electrolytes.

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

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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172. 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.

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

If both the statement are TRUE, STATEMENT -2 is NOT the correct explanation of STATEMENT -1 ,

If STATEMENT -1 is TRUE and STATEMENT is FALSE ,

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

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 accoridng to the instructions given below :

STATEMENT-1: Gold sol is multimolecular and hydrophotic 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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174. How many colloidal systems exist in nature?

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175. How many colloidal systems exist in nature?

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176. How many colloidal systems exist in nature?

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

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

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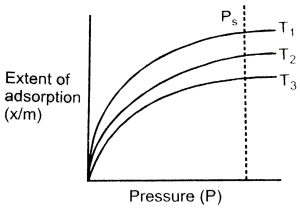
Level 2

1. for the graph below, select correct order of temperture ?



A. $T_1 > T_2 > T_3$

B. $T_2 > T_3 > T_1$

C. $T_3 > T_2 > T_1$

D. $T_1 > T_2 > T_3$

Answer: c

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