



# **CHEMISTRY**

# **BOOKS - MODERN PUBLICATION**

# SURFACE CHEMISTRY



**1.** Negative catalyst is one :

A. which retards the rate of reaction

B. Takes the reaction in forward direction

## C. promotes the side reaction

D. None

Answer: A

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2. Which is used in the Haber.s process for the

manufacture of  $NH_3$ ?

A.  $AL_2O_3$ 

 $\mathsf{B.}\,Fe+Mo$ 

#### C. CuO

D. Pt

#### Answer: B

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**3.** Which is not correct for heterogeneous catalysis ?

A. The catalyst decreases the energy of activation B. the surface of catalyst plays an important role C. the catalyst actually forms a compound with reaction D. there is no change in the energy of

activation

Answer: D

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**4.** In homogeneous catalytic reaction, the rate of reaction :

A. Depends upon the concentration of catalystB. independent of the concentration of catalyst

C. Depends on the free energy change

D. Depends upon physical state of the

catalyst



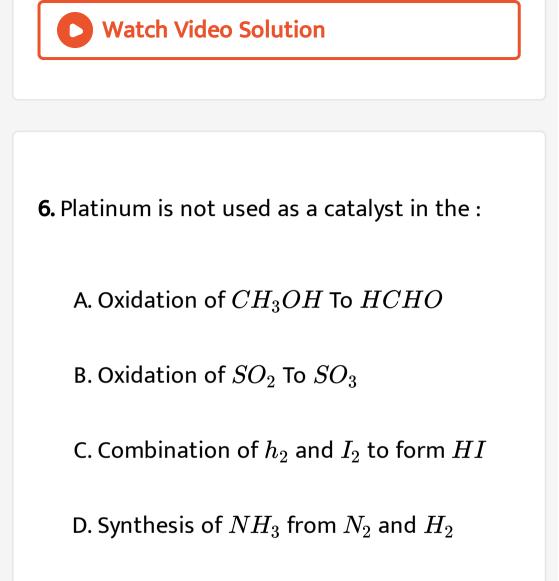


5. Hydrolysis of cane sugar is catalyesd by :

A. 
$$H^{\,+}_{\,-}(w).~(16)$$

- B. Mineral acids
- C. Enzymes
- D. All

Answer: D



Answer: D

7. The decomposition of hydrogen peroxide can be slowed by addition of a small amount of acetamide. The later acts as a:

A. Deteiner

B. stopper

C. promoter

D. inhibiter

Answer: D

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**8.** One of the reasons for greater reactivity of finely divided platinum catalyst is that it has :

A. particles which are almost atomic in dimensions

B. particle size which can spread easily

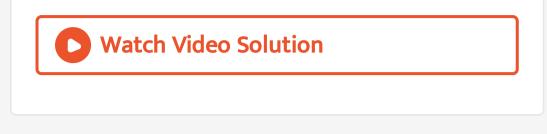
through whole reactants

C. much larger surface area

D. A physical state only in which it can react

quickly





9. Which is wrong in case of enzyme catalysis?

A. Enzymes work best at an optimum

temperature

B. Enzymes work at an optimum pH

C. Enzymes are highly specific for

substrates

D. An enzymes raises activation energy

#### Answer: D

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**10.** The colouring matter which gets adsorbed on activated charcoal is called :

A. Adsorbent

B. Adsorbate

C. Adsorber

#### D. None

#### Answer: B

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**11.** Air can oxidise sodium sulphite in aqueous solution but cannot do so in the case of sodium arsenite. If however, air is passed through a solution containing both sodium sulphite and sodium arsenite then both are oxidised. This is an example of:

A. positive catalysis

B. Negative catalysis

C. induced catalysis

D. Auto-catalysis

Answer: C

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**12.** The oxidation of oxalic acid by acidified  $KMnO_4$  becomes fast as the reaction progresses due to :

A. Auto catalysis by  $Mn^{2+}$ 

B. presence of  $SO_4^{2-}$ 

C. presence of  $k^+$ 

D. presence of  $MnO_4^-$ 

Answer: A

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13. Which is universally correct for the catalyst

- A. Initiates reaction
- B. Does not initiate reaction
- C. Does not alter the nature of products
- D. Is not specific in nature

Answer: B

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**14.**  $AlCl_3$  in Friedel-Crafts reaction acts as:

A. Oxidising agent

B. Reducing agent

C. Acid catalyst

D. None

### Answer: C

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**15.** The catalyst iron, employed in the Haber's process, contains molybdenum, the function of which is:

A. To increase the rate of combination of

gases

B. To counterbalance for the presence of

impurities in the gases

C. To act as a catalyst promoter and

increase activity of catalyst

D. To make up for the adverse temperature

and pressure conditions

#### Answer: C

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**16.** Chemisoption is:

A. multimolecular in nature

B. Reversible

C. Often highly specific and directional

D. Not very specific

Answer: C

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**17.** For an exothermic reaction :

A. Energy of reactants is gt Energy of products
B. Energy of reactants islt energy of products

C. Energy of reactants is = energy of

products

D. None







**18.** Catalytic poisoners act by :

A. Coagulating the catalytic

B. Getting adsorbed on the active centres

on the surface of catalyst

C. chemical combination with any one of

the reactants

D. None

Answer: B



**19.** Protons accelerate the hydrolysis of esters.

This is an example of :

A. A heterogeneous catalysis

B. An acid-base catalysis

C. A promoter

D. A negative catalyst

#### Answer: B





**20.**  $KCIO_3$  on heative decomposes into KCI and  $O_2$ . If some  $MnO_2$  is added the reaction goes much faster because :

A.  $Mno_2$  decomposes to give oxygen

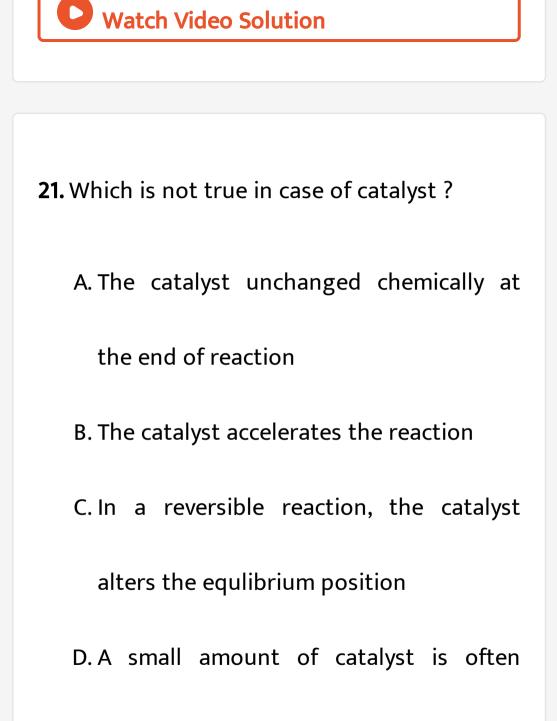
B.  $MnO_2$  provides heat by reacting

C. Better contact is provided by  $MnO_2$ 

D.  $MnO_2$  acts as a catalyst

#### Answer: D





sufficient to bring about a large change

in reaction

Answer: C

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22. Which is universally correct for catalyst ?

A. A catalyst remains unchanged chemically

at the end of chemical reaction

B. A catalyst takes part in a chemical

reaction

C. All kinds of catalysts undergo catalytic

poisoning

D. A catalyst physically changes at the end

of reaction

Answer: A

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**23.** Which type of metals form effective catalysts ?

- A. Alkali metals
- B. Transition metals
- C. Alkaline earth metals
- D. Radioactive metals

Answer: B

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24. Which acts as negative catalyst:

A. Lead tetraethyl as antiknock compounds

B. Glycerol in decomposition of  $H_2O_2$ 

# C. Ethanol in oxidation of chloroform

D. All

Answer: D

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# **25.** A biological catalyst is essentially a/an:

A. carbohydrate

B. Enzyme

C. Amino acid

D. Nitrogen molecule

Answer: B

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26. Enzymes are :

A. Moulds

B. complex nitrogen compounds

C. micro-organisms

D. Inorganic sulphides

Answer: B

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**27.** Which acts as a promoter for nickel in the hydrogenation of oils ?

A. Cu

 $\mathsf{B}.\,Mo$ 

 $\mathsf{C}.\,Fe$ 

D. Pt

Answer: A

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**28.** The process which is catalysed by one of the products formed during the reaction is known as:

A. Auto-catalysis

**B.** Anticatalysis

C. Negative catalysis

D. Acid catalysis

#### Answer: A



**29.** For adsorption of gas on solid surface the plots of log x/m vs log P is linear with a slope

equal to :

B. log K

C. In K

D. 1/n (n being integer)

Answer: D

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**30.** Which acts as poison for Pd-charcoal in

Lindlar's catalyst ?

A.  $BaSO_4$ 

# B. Quinoline

C. Both (a) and (b)

D. None

## Answer: C

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**31.** The inhibitors :

A. Retard the rate of a chemical reaction

B. Stop a chemical reaction immediately

C. Are reducing agents

D. Do not allow the reaction to proceed

Answer: A

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**32.** Which is used as catalyst to retard the

oxidation of chloroform ?

A.  $H_2O$ 

 $\mathsf{B.}\, C_2 H_5 OH$ 

C. Glycerol

 $\mathsf{D.}\,H_2SO_4$ 

#### Answer: B



**33.** Fermentation of starch to give alcohol takes place in presence of:

A. Enzymes work best at an optimum

temperature

 $\mathsf{B.}\,CO_2$ 

C. Air

 $\mathsf{D.}\,N_2$ 

Answer: A

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**34.** A substance which alters the rate of a reaction is known as :

A. promoter

B. catalyst

C. Activator

D. initiator

Answer: B

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**35.** Which acts as inhibitor for knocking in combustion of petrol ?

A.  $(C_2H_5)_4pb$ 

 $\mathsf{B.}\,Ni(CO)_4$ 

C. Both (a) and (b)

D. None

Answer: C

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**36.** Enzymes are :

A. substance made by chemists to activate

washing powder

B. very active vegetable catalysts

# C. catalysts found in organisms

D. synthetic catalysts

Answer: C

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# 37. Who coined the term catalysis and Nobel

Prize ?

A. Berzelius

B. kolbe

C. wholer

D. Rutherford

Answer: A

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**38.** A catalyst:

A. Increases the energy change in the

reaction

B. Decreases the energy change in the

reaction

C. Does not increase or decrease the

energy change in the reaction

D. can either decrease or increase the

energy change

Answer: C

39. Which statement is wrong?

A. Habers's process of  $NH_3$  requires iron

as catalyst

B. Friedel-crafts reaction requires

anhydrous  $ALCL_3$ 

C. Hydrogenation of oils requires iron as

catalyst

D. Oxidtion of  $SO_2$  to  $SO_3$  requires  $V_2O_5$ 

Answer: C



40. In a reversible reaction, a catalyst :

A. Increases the rate of the forward reaction only B. Increases the rate of the forward reaction to a greater extent than that of the backward reaction C. increases the rate of the forward reaction and decreases that of the

backward reaction to different extent

D. Increases the rate of the forward and

backward reaction equally

Answer: D

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41. A catalyst is used in a reaction to :

A. Change the nature of reaction products

B. Increase the reaction yield

C. decrease the need for reactants

D. Decrease the time required for the

reaction

Answer: D

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42. Which requires catalyst ?

A.  $S + O_2 o SO_2$ 

 $\mathsf{B.}\,2SO_2+O_2\to 2SO_3$ 

# $\mathsf{C}.\,C+O_2 o CO_2$

D. All

#### Answer: B



# **43.** During hydrogenation of oils catalyst commonly used is:

A. pd or  $CuCL_2$ 

B. Finely divided Ni

 $\mathsf{C}.\,Fe$ 

D.  $V_2O_5$ 

#### Answer: B



**44.** A catalyst is a substance which :

A. Alters the equilibrium in a reaction

B. Does not participate in the reaction but

speeds it up

C. participate in the reaction and provides

an easier pathway for the same

D. Is always in the same phase as the

reactants

Answer: C

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**45.** Platinized asbestos used as a catalyst in the manufacture of  $H_2SO_4$  is an example of:

A. Heterogeneous catalyst

B. Auto-catalyst

C. Homo-catalyst

D. Induced catalyst

Answer: A

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46. The efficiency of an enzyme in catalysing a

reaction is due to its capacity :

A. To form a enzyme-substrate complex

B. To decrease the bond energies of the

substrate molecule

C. To change the shape of the substrate

molecule

D. None

Answer: A

47. In which process, a catalyst is not used :

A. Deacon's process

B. Solvay's process

C. Chamber process

D. Haber's process

Answer: B

48. The reaction in which catalyst and reactant

have one phase are known as:

A. Gaseous reactions

B. Homogeneous catalytic reaction

C. Heterogeneous catalytic reaction

D. None

Answer: B

**49.** A substance which alters the rate of a

reaction is known as :

A. Initiator

B. Catalyst

C. promoter

D. Auto-catalyst

Answer: C

**50.** A catalyst increases the rate of reaction because it :

A. Increases the activation energy

B. Decreases the energy barrier for

reaction

C. Decreases the collision diameter

D. Increases the temperature coefficient

Answer: B



**51.** When a catalyst increases the rate of a chemical reaction, the rate constant:

A. Increases

B. Decreases

C. Remains constant

D. Becomes infinite

Answer: A

**52.** The rate of a certain biochemical reaction catalyesd by an enzyme in human body is  $10^4$  times faster than when it carried out in the laboratory. The activation energy of this reaction :

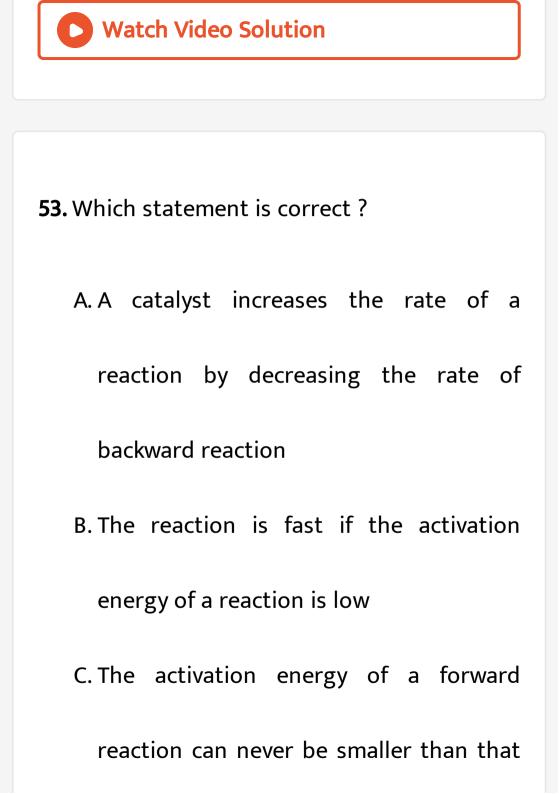
A. Is zero

B. Is different in two cases

C. Is the same in both the cases

D. None

Answer: B



of backward reaction

D. Reaction rate increases with

temperature

Answer: B

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**54.** Which does not influence the rate of a reaction ?

A. Temperature

### B. Catalyst

# C. Concentration of reactants

D. None

#### Answer: D

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# **55.** Which statement is wrong?

A. The catalyst does not alter the

equilibrium of a reaction

B. Reaction with higher activation energy

has higher rate constant

C. In the endothermic reaction, the

activation energy of the reaction is

higher than that of heat of reaction

D. Half life period of a first order reaction is

independent of initial concentration

Answer: B

**56.** Which can adsorb large volumes of hydrogen gas ?

A. Colloidal solution of palladium

B. Finely divided Nickel

C. Finely divided platinum

D. Colloidal  $Fe(OH)_3$ 

Answer: A

#### **57.** Enzyme catalyst are:

A. Highly specific in nature

- B. Non-specific
- C. Solids
- D. Always liquid

Answer: A



**58.** which one acts as a poison to finely divided Fe in Haber's process for the manufacture of  $NH_3$ ?

- A.  $CO_2$
- $\mathsf{B.}\,NO$
- C. *CO*
- D.  $N_2$

#### Answer: C



59. The enzyme ptyalin used for digestion of

food is present in :

A. Saliva

B. Blood

C. Intestine

D. Adrenal glands

Answer: A

**60.** Which statement about enzymes is not correct ?

A. Enzymes are colloidal state

B. Enzymes are catalysts

C. Enzymes can catalys e any reaction

D. Unrease in an enzyme

Answer: C

**61.** Which acts poison to platinum (a catlyst) in the manufacture of  $H_2SO_4$  by contact process?

A. Arsenious oxide

 $\mathsf{B.}\,CO_2$ 

 $\mathsf{C}.\,CO$ 

D. Sodium sulphate

Answer: A

62. Modern theory of heterogeneous catalysis

is:

- A. Intermediate compound formationtheoryB. Adsorbtion theory
- C. A combination of two theories i.e.,

intermediate compound formation and

adsorbtion theory

D. None





**63.** Enzymes are known to increase the rate of reaction by :

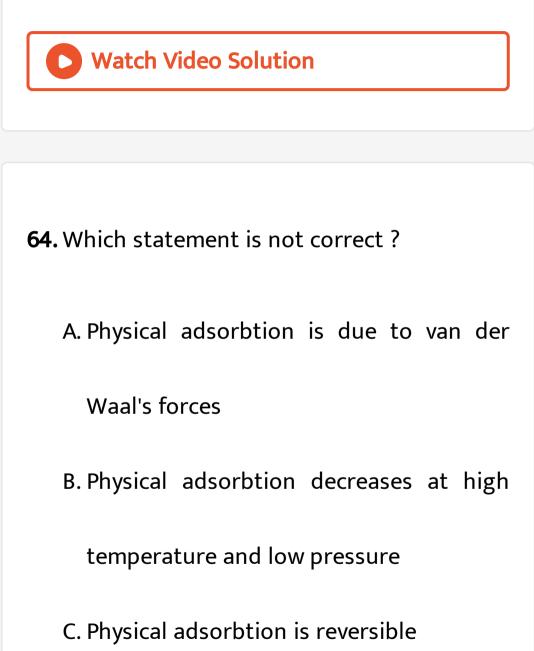
A. 10^(2) times

B. 10<sup>(-2)</sup> times

C. 10<sup>(5)</sup> times

D. 10<sup>^</sup>(12) times





D. Adsorbtion energy for a chemical

adsorbtion is generally lesser than that

or physical adsorbtion

Answer: D

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**65.** In the adsorption of oxalic acid by activated charcoal, the activated charcoal is known as :

### A. Adsorbent

- B. Adsorbate
- C. Adsorber
- D. None

Answer: A



**66.** The process of froth floatation and chromatography are based on :

- A. Emulsification
- **B.** Adsorbtion
- C. Adsorbtion
- D. Either of them

Answer: D

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**67.** Platinum is used as a catalyst in :

A. Oxidation of ammonia to form nitric acid

B. Hardening of oils

C. Production of synthetic rubber

D. Synthesis of methanol

Answer: A

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68. A catalyst in the finely divided from is most

effective because :

A. Less surface area is available

B. More active centres are formed

C. More energy gets stored in the catalyst

D. None

Answer: B

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**69.** A catalyst for reversible reaction is a substance that :

A. Supplies energy to the reaction

B. Decreases the time to reach equilibrium

C. Increases the equilibrium concentration

of the products

D. Change the equilibrium constant of the

reaction

Answer: B

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70. When a catalyst is added to a system the:

A. Equilibrium concentration are increased
B. Equilibrium concentrations are
unchanged
C. Rate of forward reaction is increased
and that of backward reaction is
decreased
D. Value of equilibrium constant is
decreased

Answer: B

71. The colloidal system of liquid dispersed in

solid is called \_\_\_\_\_.



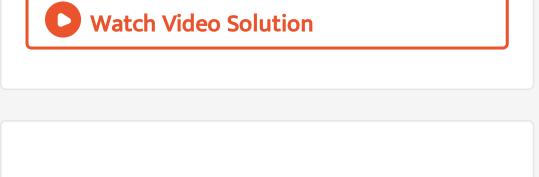
#### 72. The method of removing of soluble

impurities of solutions is called \_\_\_\_



73. In physisorption, the molecules of adsorbate held to the adsorbent by Watch Video Solution 74. Is used to remove coloured matter from solution of sugar Watch Video Solution

75. Milk is an exmaple of—,

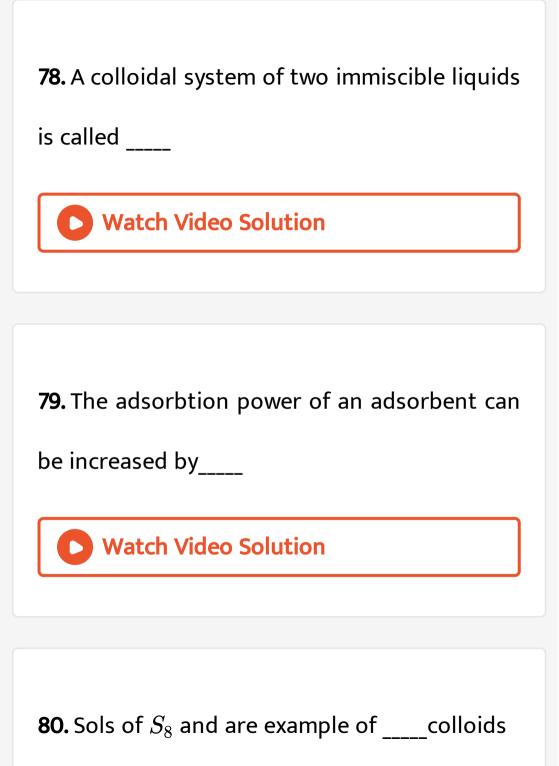


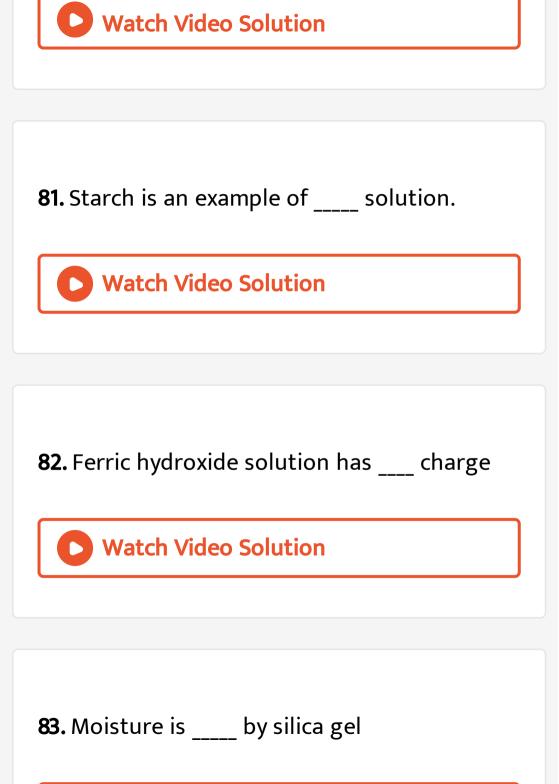
#### **76.** Lyophilic sols are more stable than

lyophobic sols because

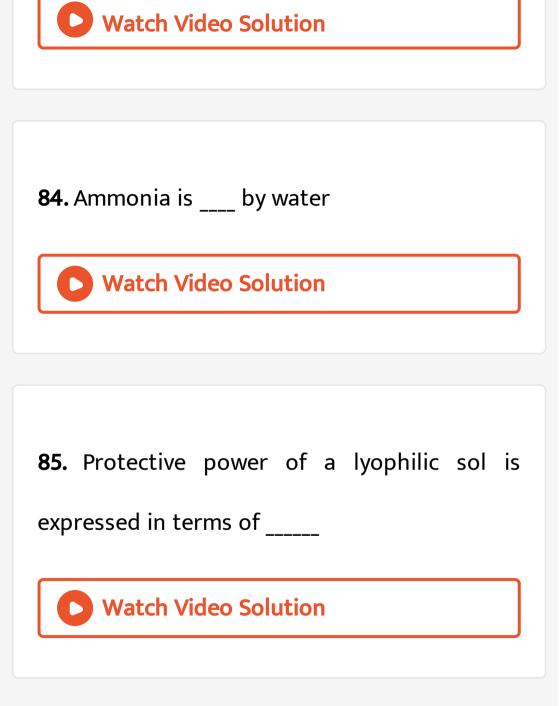
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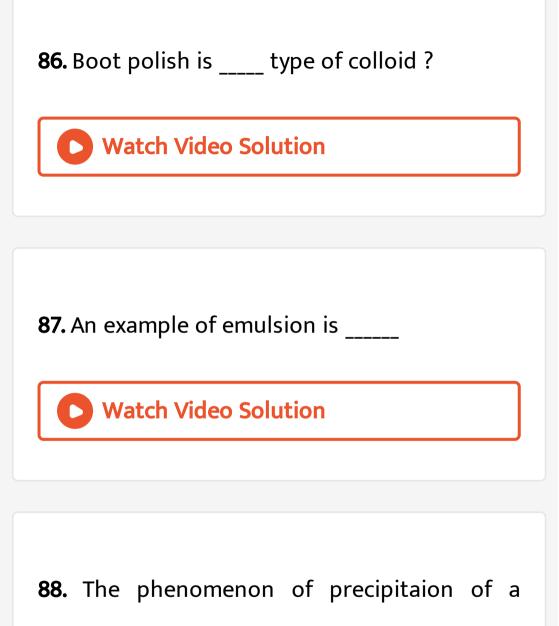
77. The rate of chemisorption





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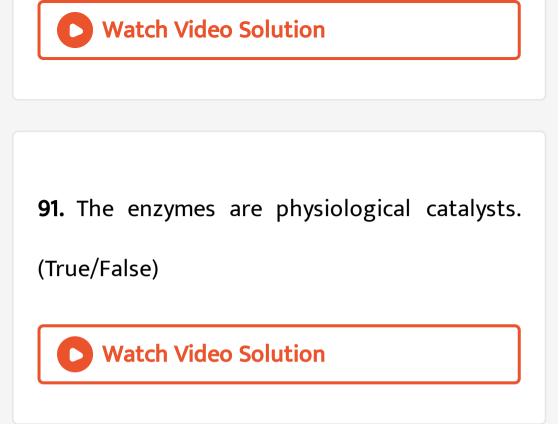




colloidal solution by the addition of excess of

an electrolyte is called,Which is due to
Watch Video Solution
89. The zig-zag motion of colloidal particles is
called
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**90.** The scattering of light on the surface of colloidal particle is \_\_\_\_\_.

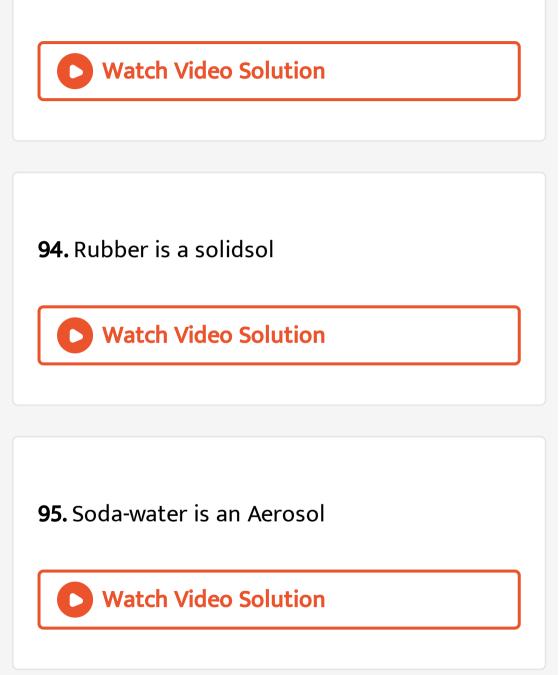


### **92.** Chemisorption has a lower enthalpy of

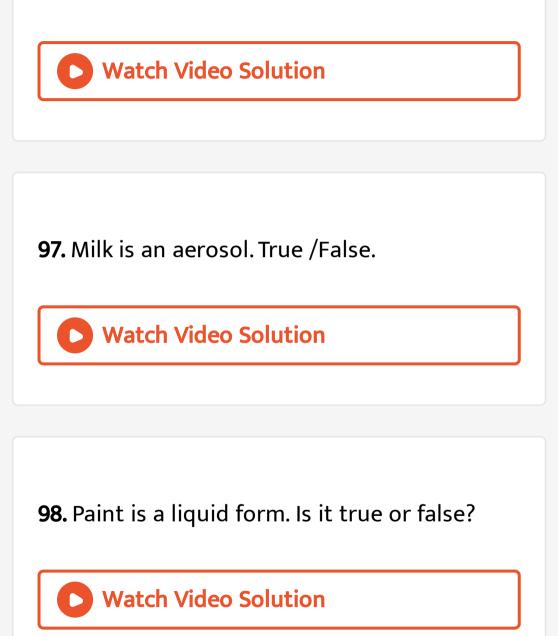
adsorbtion than physisorption. (True/ False)



93. Fog is an emulsion . true or false



**96.** Toothpaste is solisol.



99. The scattering of light on the surface of

colloidal particle is \_\_\_\_.

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100. The reverse process of coagulation is

called dialysis. (true/false)

**101.** The process of separation of crystalloids from colloids is called electrophoresis.

(true/false)



102. Starch ,collulose,proteins,enzymes which

type of colloid?

**103.** What term is assigned to the clusters or aggregeted particles formed by the association of colloids in sollution?



#### 104. What are micelles? Give an example of a

micelle system.



**105.** Tyndall effect is shown by the process of

removal of electrolytes and soluble impurities

from a colloidal solution. (True or False)



**106.** What is the term assigned to the process of converting a freshly prepared precipitate into colloidal form by the addition of a suitable electrolyte ?



**107.** Name the method used for the preparation of colloidal sols of metals like copper,silver, and gold .

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108. Which method is used for the preparation

of colloidal solution of black

ink,paints,varnishes,dyes, and gum?

**109.** What is the peptising agent used to convert  $Fe(OH)_3$  Precipitate to its colloidal form ?



#### 110. Write the term used to express the zig-zag

random motion of colloidal particles observed

through ultra micrscope.



**111.** What is the term used to express the process of scattering light by colloidal particles resulting the illumination of path of the beam light .

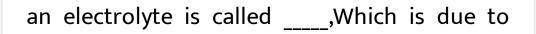


**112.** Which term is used to express the phenomenon of movements of colloidal particles under the influence of an applied electric field ?

**113.** Name the phenomenon of movement molecules of dispersion medium under the influence of applied electric field ,where the movement of colloidal particles is prevented



## **114.** The phenomenon of precipitaion of a colloidal solution by the addition of excess of

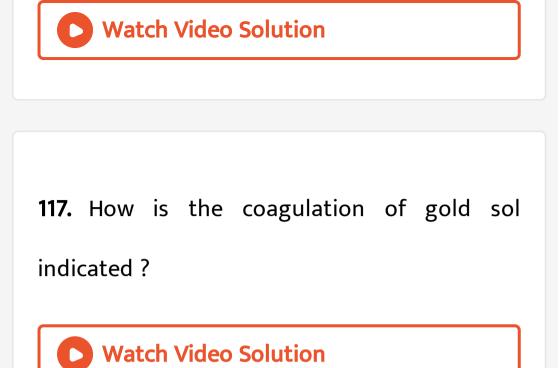




**115.** What is the significant term used to describe quantitatively the protective power of different colloids ?

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**116.** What is the standard red gold sol?



118. Name the type of emulsion to which milk

belongs .

119. What are micelles? Give an example of a

micelle system.



**120.** physisorption and chemisorption, which type of adsorption has higher enthalpy of adsorption?

**121.** What is term assigned to the process of removal of adsorbate (adsorbed substance) from the surface of adsorbent ?



**122.** what is the term used for the process ,when both adsorption and absorption takes

place simultaneously ?



123. Between physical and chemical adsorption

which has high enthalpy of adsorption ?



**124.** What is the term used for the graphical relation between the extent of adsorption (x/m) and temperature (T) at constant gas pressure ?



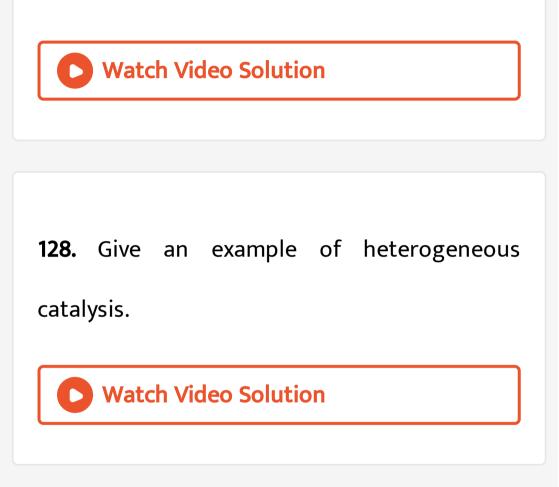
**125.** What is the term used for the graphical relation between the extent of adsorption (x/m) and temperature (T) at constant gas pressure ?



#### 126. What is the effect of rise in temperature

on physisorption ?

**127.** Give an exaple of homogeneous catalysis.



129. Which catalyst is used for synthesis of

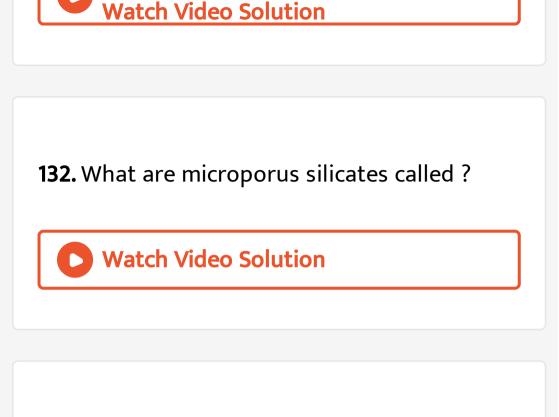
 $NH_3$  by haber's process ?

**130.** Which one shows very high catalytic activity in the reaction of  $H_2(g)$  and  $O_2(g)$  to forms  $H_2O(l)$ ?

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**131.** What is the selective catalyst used in the reaction of  $H_2(g)$  and CO(g) to give  $CH_3OH$  selectively ?





#### 133. Which catalyst act as shape-selective

catalysts?

134. Which are the actual catalyst exist on the

enterior walls of zeolites ?

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135. What type of structures causes zeolites to

act as good shape-selective catalysis?

136. Name an important zeolite catalyst used

in the petrolium industry.

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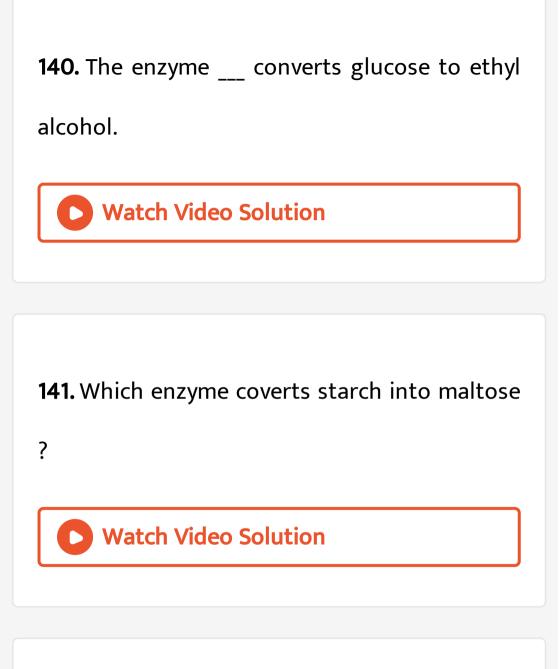
137. Which catalyst converts alcohols directly

into gasoline (petrol)?

**138.** Which type of catalysts are occuring in living system to control the rate of all biochemical reactions?



# **139.** Which enzyme converts maltose into glucose ?



**142.** What is the size of a colloidal particle?



**143.** Which type of colloidal system includes mist, fog and cloud ?

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144. Name the colloidal system which includes

butter , cheese, curd, jelly and boot polish ?



145. Name the colloidal system which includes

alloys, colloured glass, gem stones, ruby glass.



146. Which type of colloidal system includes

smoke, dust, storm, haze ?

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**147.** Give an example of sol.





### 148. Gum, starch, gelatin are which type of

colloids ?



# **149.** $AL(OH)_3$ , $Fe(OH)_3$ , $As_2S_3$ , Cu, Ag, Au,

are which type of colloids ?

**150.** Give an example of multimolecular

colloids.



151. What is especially observed when a beam

of light is passed through a colloidal solution?

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152. What are micelles? Give an example of a

micelle system.



**153.** physisorption and chemisorption, which type of adsorption has higher enthalpy of adsorption?



154. Which type of adsorption is highly specific

and irreversible ?

**155.** Name any two/four applications of adsorption (four).

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**156.** Does the adsorption of a gas on the

surface of a solid increase or decrease withrise

in temperature ?

157. What is the role of desorption in the

process of catalysis?



158. What are the characteristics of Lyophobic

sols.

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159. Define peptisation.

160. What happens when an electrolyte is

added to ferric hydroxide sol?

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161. Write the dispersed phase and dispersion

medium of the following colloidal systems :

(i)Smoke (ii)Milk



**162.** What are lyophilic and lyophobic colloids ? Which of these sols can be easily coagulated on the addition of small amount of electrolytes ?

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**163.** Define adsorption with example.

164. What are oil in water and water in oil type

of emulsions ? Give one example of cach type.

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**165.** What is the effect of rise in the temperature on the adsorption of a gas on the surface of a solid ?

**166.** What phenomena will occur, when sillica gel and anhydrous calcium chloride are placed separately in a vessel containing water vapour?

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**167.** Name the catalytic promoter or activater used Haber's process for the synthesis of ammonia.

168. Where the actual catalytic functioning of

enzyme starts to occur?

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169. How does NaCl behave in water and

benzene (or alcohol)?

170. What is the size of the insoluble particles

present in suspension ?

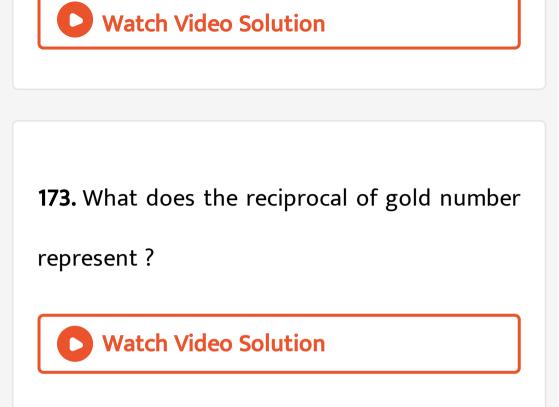
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#### 171. How can acetone be prepared from- acetyl

chloride



172. What is gold number?



**174.** Does the adsorption of a gas on the surface of a solid increase or decrease withrise

in temperature ?

175. What is an adsorption isotherm? Describe

Freundlich adsorption isotherm.

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# 176. What is the role of desorption in the

process of catalysis?

177. Why does physisorption decrease with

increase of temperature ?

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**178.** Why are substances like platinum and palladium often used for carrying out electrolysis of aqueous solutions?

**179.** What are lyophilic and lyophobic colloids ?

Give one example of each.

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**180.** define shape selective catalysis with one example.



181. How does chemical adsorption of a gas on

a solid vary with temperature ?

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182. What happens when gum arabic is mixed

with gold sol?

183. Why is chemisorption referred to as activated adsorption?Watch Video Solution

184. Why are some medicines more effective in

the colloidal form?



185. Gelatin which is a peptide, is added in ice-

creams. What can be its role?

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**186.** On passing  $H_2S$  through an aqueous solution of  $SO_2$  a yellow turbidity is formed .why ?

187. Why activated charcoal is a better absorbent than ordinary charcoal? Watch Video Solution 188. When rivers meet the ocean, they generally form delta, give resasons. Watch Video Solution

189. Why coloid cannot be filtered by ordinary

filter paper ?

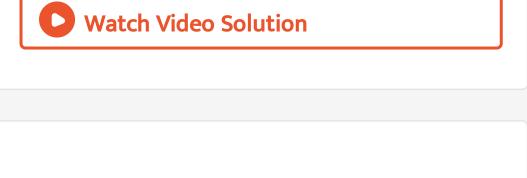
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**190.** Name any two applications of adsorption.

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191. Give the dispersion medium and dispersed

phase of the following (i)smoke (ii)milk

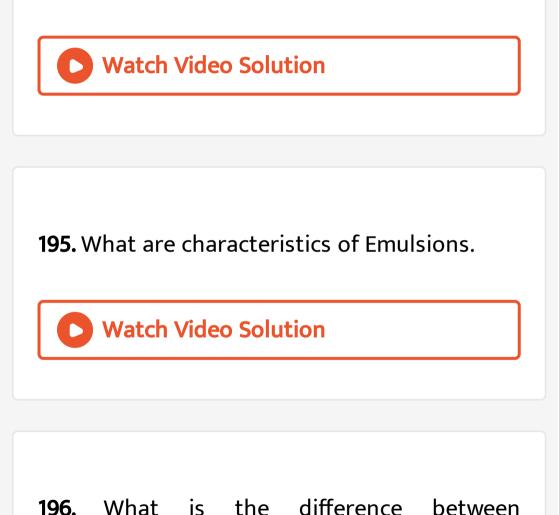


**192.** Explain why colloidal solution is not precipitated in the presence of gelatin.

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**193.** Explain what happens when a colloidal solution of gold is brought under the influence of electric current.

194. Define lyophilic sol with one example.



multimolecular and macromolecular colloids?

Give one example of each. How are associated

colloids different from these two types of colloids?

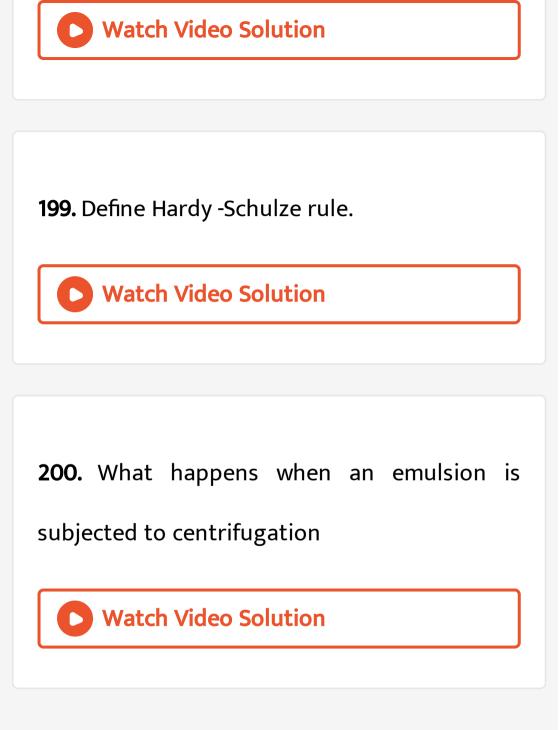
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197. Differentiation between denaturation and

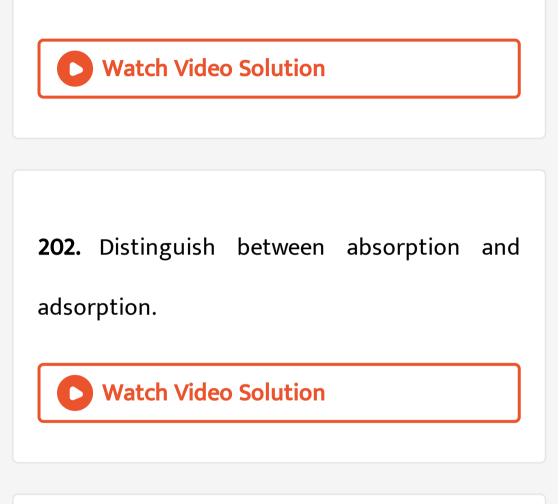
coagulation

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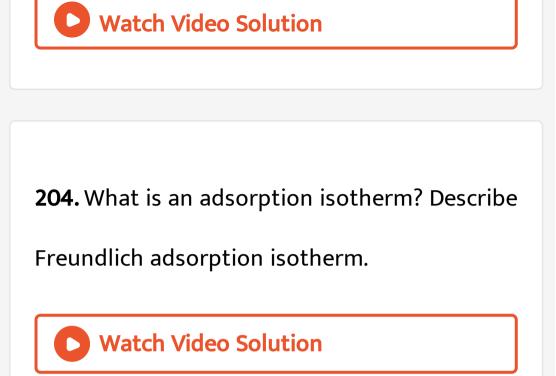
**198.** Define associated colloids with example.



**201.** Define macromolecular sol with example.



**203.** Give six points of difference between physical adsorption and chemical adsorption.



**205.** Account for the fact that the charge of the colloidal particles is due to the selective adsorption of ions.

206. What is the difference between multimolecular and macromolecular colloids? Give one example of each. How are associated colloids different from these two types of colloids?

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207. (c) What are micelles ? How do they differ

from normal colloidal solutions ?

**208.** What are lyophilic and lyophobic colloids ? Which of these sols can be easily coagulated on the addition of small amount of electrolytes ?

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**209.** (b) How will you identify , whether the given emulsion is oil in water type or water in oil type emulsion ?



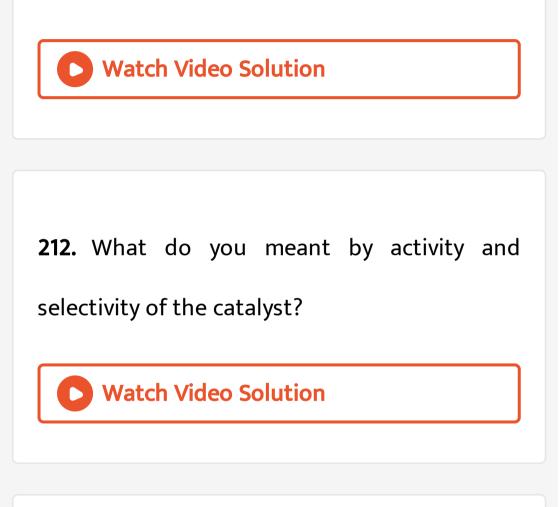
**210.** What is meant by coagulation of a colloidal solution ?Describe briefly any three methods by which coagulation of iyophobic sols can be carried out.



**211.** Name the two groups into which phenomenon of catalysis can be divided. Give

an example of each group with the chemical

equation involved.



**213.** Give two examples of enzyme catalysis reaction.



**214.** How are colloids classified on the basis of the forces of attraction between the two phases in the colloidal systems ? Give the important points of distinction between them.

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**215.** (b) What is the difference between oil/water (O/W) type and water/oil (W/O) type

emulsion? Give an example of each type .

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216. What is the difference between multimolecular and macromolecular colloids? Give one example of each. How are associated colloids different from these two types of colloids?

217. Define the following terms with an

example in case:

Macromolecular sol



**218.** Explain the following in connection with colloids:

(i) Hardy schulze rule (ii) Dialysis

**219.** (c) Explain what is observed when (i) an electrolyte NaCl is added to ferric hydroxide sol (ii) an emulsion is subjected to centrifugation (iii)direct current is passed through a colloidal

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**220.** (a) Define the following terms giving an example of each : (i) Associated colloids (ii) Lyophilic sol (iii)Adsorption

**221.** (b)write the difference between physisorption and chemisorption with respect to the following : (i) Specificity (ii) Temperature dependence (iii) Reversibility and (iv) Enthalpy change

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**222.** Explain the following terms : (a) Electrodialysis





### 223. What are enzyme catalysts ? Give a

reaction involving an enzyme catalyst.

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224. Name four factors affecting adsorption

gases by solids.

225. What are oil in water and water in oil type

of emulsions ? Give one example of cach type.

