



# CHEMISTRY

## BOOKS - MBD CHEMISTRY (ODIA ENGLISH)

### SURFACE CHEMISTRY

#### Question Bank

1. Why colloid cannot be filtered by ordinary filter paper ?



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2. Give an example of emulsion.



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3. Name any two applications of adsorption.



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4. What is the size of colloidal particle ?



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**5.** Boot polish is what type of colloid.



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**6.** Define gold number.



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7. What is the effect of increase of temperature on viscosity of liquid ?



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8. Define peptisation.



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9. What is dialysis ?



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10. Explain electrophoresis.



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11. What is *Sol* ?



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12. Give an example of emulsion.



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**13.** State and discuss Hardy-Schulze rule.



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**14.** What is sorption ?



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**15.** Boot polish is what type of colloid.



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16. .... is an example of emulsion.



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17. The phenomenon of precipitaion of a colloidal solution by the addition of excess of an electrolyte is called \_\_\_\_\_,Which is due to \_\_\_\_\_



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**18.** The zig-zag motion of colloidal particles is called \_\_\_\_\_



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**19.** The scattering of light on the surface of colloidal particle is \_\_\_\_\_.



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20. The colloidal system of liquid dispersed in solid is called \_\_\_\_\_.



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21. Fog is a \_\_\_\_\_ colloidal solution.

A. gas in liquid

B. solid in gas

C. gas in gas

D. liquid in gas

**Answer:**



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**22. Rubber is a solidsol**



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**23. Soda-water is an Aerosol**



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**24.** Toothpaste is solisol.



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**25.** Milk is an aerosol. True /False.



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**26.** Why activated charcoal is a better absorbent than ordinary charcoal ?



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**27.** Why cannot colloidal sol. Be filtered by ordinary filter paper ?



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**28.** When rivers meet the ocean, they generally form delta, give reasons.



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**29.** Why colloid cannot be filtered by ordinary filter paper ?



**Watch Video Solution**

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



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**31.** Give the dispersion medium and dispersed phase of the following : (i) smoke



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**32.** Give the dispersion medium and dispersed phase of the following : (ii) milk.



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



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



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**35.** Distinguish between absorption and adsorption.



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**36.** What is gold number?



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



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**38.** How will you prepare an aqueous colloidal solution of sulphur or arsenious sulphide ?





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**39.** Describe briefly how gold sol can be prepared.



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**40.** What is Tyndall effect? What is it due to?



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**41.** What are lyophobic and lyophilic solids?



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**42.** What are lyophobic and lyophilic solids?



**Watch Video Solution**

**43.** What is Tyndal effect ? Explain with diagram.



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**44.** Write a note on cataphoresis.



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**45.** Write what you know about coagulation



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**46.** What are emulsions? What are their different types? Give one example of each

type.



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**47.** Distinguish between absorption and adsorption.



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**48.** Explain different types of adsorptions.



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**49.** A auto-catalyst is:

A. Catalyst for catalyst

B. One which starts a reaction

C. One in which one of the products of the reaction acts as a catalyst

D. Which retards a chemical reaction.

**Answer: C**



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50. The catalyst used in the manufacture of nitric acid by Ostwald process is:

A. Mo

B. Pt

C.  $V_2O_5$

D. Fe

**Answer: B**



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51. Which is an example of auto-catalyst ?

A. Hydrolysis of methyl acetate

B. Decomposition of TNG

C. Oxidation of oxalic acid by  $KMnO_4$

D. All

**Answer: D**



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52. A substance which completely destroys or reduces the activity of the catalyst is called:

- A. Catalyst
- B. Inhibitor
- C. Promotor
- D. Catalyst poison

**Answer: B**



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**53.** Which is not true in case of catalyst ?

A. The catalyst is unchanged chemically at the end of a reaction

B. The catalyst accelerates the reaction

C. In a reversible reaction, the catalyst alters the equilibrium position

D. A small amount of catalyst is often sufficient to bring about a large change in reaction

**Answer: C**



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**54. 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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**55.** 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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**56. Which acts as negative catalyst:**

A. Lead tetraethyl as antiknock compound

B. Glycerol in decomposition of  $H_2O_2$

C. Ethanol in oxidation of chloroform

D. All

**Answer: D**



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**57.** A biological catalyst is essentially a/an:

A. Carbohydrate

B. Enzyme

C. Amino acid

D. Nitrogen molecule

**Answer: B**



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**58.** Enzymes are:

A. Moulds

B. Complex nitrogen compounds

C. Micro-organisms

## D. Inorganic sulphides

**Answer: B**



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

A. Cu

B. Mo

C. Fe

D. Pt

**Answer: A**



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

A. Auto-catalysis

B. Anti-catalysis



C. Negative catalysis

D. Acid catalysis

**Answer: A**



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**61.** For adsorption of gas on solid surface the plots of  $\log x/m$  vs  $\log P$  is linear with a slope equal to :

A. K

B.  $\log K$

C.  $\ln K$

D.  $1/n$  (n being integer)

**Answer: D**



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**62.** 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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**63.** 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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**64.** Which is used as catalyst to retard the oxidation of chloroform ?

A.  $H_2O$

B.  $C_2H_5OH$

C. Glycerol

D.  $H_2SO_4$

**Answer: B**



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

A. Enzymes

B.  $CO_2$

C. Air

D.  $N_2$

**Answer: A**



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

A. Promoter

B. Catalyst

C. Activator

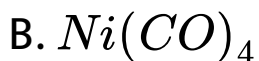
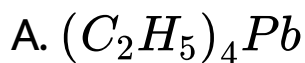
D. Initiator

**Answer: B**



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



C. Both (a) and (b)

D. None

**Answer: C**



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**68.** Enzyme are:

A. Substances 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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**69.** Who coined the term catalysis and Nobel Prize ?

A. Berzelius

B. Kolbe

C. Wholer

D. Rutherford

**Answer: A**



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**70. A catalyst:**

A. Increases the energy change in the reaction

B. Decreases the energy change in the reaction

C. Does not Increases or decrease the energy change in the reaction

D. Can either decrease or increases the energy change

**Answer: C**



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71. Which statement is wrong?

A. Haber's process of  $NH_3$  requires iron as catalyst.

B. Substances made by chemists to activate washing power

C. Hydrogenation of oils requires iron as catalyst

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

**Answer: C**

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72. 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 extent.

D. Increases the rate of the forward and backward reaction equally

**Answer: D**



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**73.** A catalyst is used in a reaction to :

A. Change the nature of reaction products

B. Increases the reaction yield

C. Decrease the need for reactants

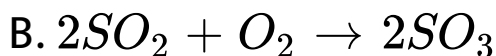
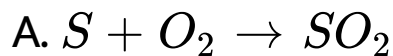
D. Decrease the time required for the  
reaction

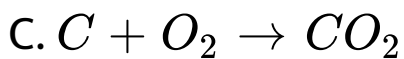
**Answer: D**



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**74. Which requires catalyst ?**





D. All

**Answer: B**



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**75.** During hydrogenation of oils catalyst commonly used is:

A.  $Pd$  or  $CuCl_2$

B. Finely divided Ni



C. Fe

D.  $V_2O_5$

**Answer: B**



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**76.** 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. Participates in the reaction and provides  
at easier pathway for the same

D. Is always in the same phase as the  
reactants

**Answer: C**



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**77.** 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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**78.** The efficiency of an enzyme in catalysing a reaction is due to its capacity :

A. To form a enzyme-substrate complex

B. To decreases the bond energies of the  
substrate molecule

C. To change the shape of the substrate  
molecule

D. None

**Answer: A**



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79. 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**



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**80.** The reaction in which catalyst and reactant have one phase are known as:

- A. Gaseous reaction
- B. Homogeneous catalytic reaction
- C. Heterogeneous catalytic reaction
- D. None

**Answer: B**



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

A. decreases the activation energy

B. Decreases the energy barrier for reaction

C. Decreases the collision diameter

D. Increases the temperature coefficient

**Answer: C**



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

- A. Increases
- B. Decreases
- C. Remains constant
- D. Becomes infinite

**Answer: B**



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**83.** 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**



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**84.** The rate of a certain biochemical reaction catalysed 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**



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**85.** Which statement is correct ?

A. A catalyst increases the rate of a reaction by decreasing the rate of backward reaction.

B. The reaction is fast if the activation energy of a reaction is low

C. The activation energy of a forward reaction can never be smaller than that

of the backward reaction

D. Reaction rate increases with temperature because the activation energy decreases at high temperature

**Answer: B**



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

A. Temperature

B. Catalyst

C. Concentration

D. None

**Answer: D**



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**87. 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**



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88. 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**



89. The enzyme ptyalin used for digestion of food is present in :

- A. Saliva
- B. Blood
- C. Intestine
- D. Adrenal glands

**Answer: A**





**90.** Enzyme catalyst are:

- A. Highly specific in nature
- B. Non-specific
- C. Solids
- D. Always liquid

**Answer: A**



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91. Which is used in the Haber's process for the manufacture of  $NH_3$  ?

A.  $CO_2$

B. NO

C. CO

D.  $N_2$

**Answer: C**



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92. Which statement about enzymes is not correct ?

- A. Enzymes are in colloidal state
- B. Enzymes are catalysts
- C. Enzymes can catalyze any reaction
- D. Urease is an enzyme

**Answer: C**



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93. Which acts poison to platinum ( a catalyst ) in the manufacture of  $H_2SO_4$  by contact process?

A. Arsenic

B.  $CO_2$

C. CO

D. Sodium sulphide

**Answer: A**



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94. Modern theory of heterogeneous catalysis is:

A. Intermediate compound formation theory

B. Adsorption theory

C. A combination of two theories, i.e. intermediate compound formation and adsorption theory

D. None

**Answer: C**



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

A.  $10^2$  times

B.  $10^{-2}$  times

C.  $10^5$  times

D.  $10^{12}$  times

**Answer: D**



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**96. Which statement is not correct ?**

- A. Physical adsorption is due to van der Waals. forces
- B. Physical adsorption decreases at high temperature and low pressure
- C. Physical adsorption is reversible

D. Adsorption energy for a chemical adsorption is generally lesser than that or physical adsorption

**Answer: D**



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

A. Adsorbent



B. Adsorbate

C. Absorber

D. None

**Answer: A**



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

A. Emulaification

B. Adsorption

C. Absorption

D. Either of them

**Answer: D**



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**99.** 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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**100.** A catalyst in the finely divided form 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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**101.** 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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**102.** When a catalyst is added to a system the:

A. Equilibrium concentration are increased

B. Equilibrium concentration 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**



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**103.** Negative catalyst is one :

- A. Which retard the rate of reaction
- B. Takes the reaction in forward direction
- C. Promotes the side reaction
- D. None

**Answer: A**



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**104.** Which is used in the Haber's process for the manufacture of  $NH_3$  ?

A.  $Al_2O_3$

B. Fe+Mo

C. CuO

D. Pt

**Answer: B**



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105. 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 reactants

D. There is no change in the energy of activation

**Answer: D**



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

A. Depends upon the concentration of catalyst

B. Independent of the concentration of catalyst

C. Depends upon the free energy change

D. Depends upon physical state of the catalyst

**Answer: A**



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**107.** Hydrolysis of cane sugar is catalysed by :

A.  $H^+$

B. Mineral acids

C. Enzymes

D. All

**Answer: D**



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**108.** Platinum is not used as a catalyst in the :

A. Oxidation of  $CH_3OH$  to  $HCHO$

B. Oxidation of  $SO_2$  to  $SO_3$

C. Combination of  $H_2$  and  $I_2$  to form  $HI$

D. Synthesis of  $NH_3$  from  $N_2$  and  $H_2$

**Answer: D**



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

A. Detainer

B. Stopper

C. Promoter

D. Inhibitor

**Answer: D**



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**110.** 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

**Answer: C**



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**111.** 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 enzyme raises activation energy

**Answer: D**







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**112.** 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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**113.** 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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**114.** 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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**115.** 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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**116.**  $AlCl_3$  in Friedel-Crafts reaction acts as:

A. Oxidising agent

B. Reducing agent

C. Acid catalyst

D. None

**Answer: C**



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

A. To increases 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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**118.** Chemisorption is :

A. Multimolecular in nature

B. Reversible

C. Often highly specific and directional

D. Not very specific

**Answer: C**



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**119.** For an exothermic reaction :

A. Energy of reactants  $>$  energy of products

B. Energy of reactants  $<$  energy of products

C. Energy of reactants = energy of products

D. None

**Answer: A**



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**120.** Catalytic poisoners act by :

A. Coagulating the catalyst

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**





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**121.** 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**



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122.  $KClO_3$  on heating decomposes into  $KCl$  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**



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**123.** Which is a homogeneous system ?

A. A solution of sugar in water

B. Concrete

C. Muddy water

D. Bread

**Answer: A**



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**124.** The catalyst used in the contact process of sulphuric acid is :

A. Copper

B. Iron

C. Vanadium pentoxide or Pt (asbestos)

D. Ni

**Answer: C**



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**125.** Which explains the effect of a catalyst on the rate of a reversible reaction ?

A. It provides a new reaction pathway with a lower activation energy

B. It moves the equilibrium position to the right

C. It increases the kinetic energy of the reacting molecules

D. It decreases the rate of the reverse reaction

**Answer: A**



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**126.** The catalyst used in the contact process of sulphuric acid is :

A. Platinum

B. Nitric oxide



C. Nickel

D. Vanadium pentoxide

**Answer: B**



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**127.** Adsorption is accompanied by:

A. Decrease in entropy of system

B. Decrease in enthalpy

C. The value of  $T \Delta S$  is negative

D. All of these

**Answer: D**



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**128.** Which gas is adsorbed strongly by charcoal ?

A.  $CO$

B.  $N_2$

C.  $H_2$

D.  $NH_3$

**Answer: D**



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**129.** The extent of adsorption of a gas on a solid depends on :

A. A nature of gas

B. Pressure of gas

C. Temperature of the system

D. All

**Answer: D**



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**130.** Which obeys mono molecular layer formation during adsorption ?

A. Langmuir adsorption

B. Chemical Adsorption

C. Chemisorption

D. All

**Answer: D**



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**131.** Which forms multimolecular layers during adsorption ?

A. Chemisorption

B. van der Waal's adsorption

C. Freundlich adsorption

D. All

**Answer: D**



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**132.** Physical adsorption become appreciable at :

A. High temperature

B. Room temperature

C. Low temperature

D. None

**Answer: C**



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**133.** The curve showing the variation of adsorption with pressure at constant temperature is called :

A. An isostere

B. Adsorption isobar

C. Adsorption isotherm

D. All

**Answer: B**



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**134.** Adsorption is accompanied by:

A. Decrease in entropy of system

B. Decrease in enthalpy of the system

C.  $T \Delta s$  for the process is negative



D. All

**Answer: D**



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**135.** Which adsorption takes place at low temperature ?

- A. Physical adsorption
- B. Chemical adsorption
- C. Both (a) and (b)

D. None

**Answer: A**



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**136.** Which is correct in case of van der Waal's adsorption ?

A. High temperature, low pressure

B. Low temperature, high pressure

C. Low temperature, low pressure

D. High temperature, high pressure

**Answer: B**



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**137.** An increase in the concentration of adsorbate at the surface relative to its concentration in bulk phase is called

A. Positive adsorption

B. Negative adsorption

C. Adsorption

D. None

**Answer: A**



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**138.** Which is an example of a heterogeneous catalysis ?

A. Formation of  $SO_3$  in the chamber process

B. Formation of  $SO_3$  in the contact process

C. Hydrolysis of an ester in the presence of

$H^+$  ions

D. Combination of  $H_2$  and  $Cl_2$  in the presence of moisture

**Answer: B**



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**139.** ZSM-5 is used to convert :

- A. Alcohol to petrol
- B. Benzene to toluene
- C. Toluene to benzene
- D. heptane to toluene

**Answer: A**



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**140.** The decomposition of  $H_2O_2$  may be checked by adding a small quantity of phosphoric acid. This is an example of :

A. Neutralization

B. Negative catalysis

C. Positive catalysis

D. Catalytic poisoning

**Answer: B**



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**141.** In temporary poisoning, catalytic poisons act by:

A. Coagulating the catalyst

B. Chemically combining with any one of  
the reaction

C. Chemically combining with the catalyst

D. Getting physically adsorbed on the  
active centres of the catalyst

**Answer: D**



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**142.** Which equation represents Freundlich adsorption isotherm (physical adsorption) on the basis of this theory ?

A.  $\frac{x}{m} = K(P)^{1/n}$  where  $x$  is amount of gas adsorbed on adsorbent of mass  $m$  at pressure  $P$

B.  $\log\left(\frac{x}{m}\right) = \log K + \frac{1}{n}\log P$

C.  $\frac{x}{m} = KP$  at low pressure and  $\frac{x}{m} = K$  at high pressure

D. All

**Answer: D**



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**143.** The amount of gas adsorbed physically on charcoal increases with :

A. Temperature and pressure

B. Temperature and decreases with  
pressure

C. Pressure and decreases with  
temperature

D. None

**Answer: C**



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**144.** Gas masks containing activated charcoal to remove poisonous gases from atmosphere acts on the principle of :

A. Adsorption

B. Absorption

C. Sorption

D. All

**Answer: A**



**Watch Video Solution**

**145.** Efficiency of a catalyst depends on its :

A. Particle size

B. Solubility

C. Molecular weight

D. None

**Answer: A**



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**146.** The enzyme which can catalyse the conversion of glucose to ethanol is :

A. Zymase

B. Invertase

C. Maltase

D. Diastase

**Answer: A**



**Watch Video Solution**

**147.** Enzyme catalysed reaction are :

A. Highly specific

B. Usually hydrolytic in nature

C. Usually occurs with evolution of gases

D. All

**Answer: D**



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**148.** Conversion of milk into curd is made by :

A. Diastase

B. Invertase

C. *Micoderma bacilli*

D. Lactic bacilli

**Answer: D**

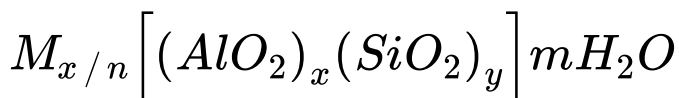


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**149. Zeolites :**

A. Are microporous aluminosilicates

B. Have general formula





C. Have pore size between 260 pm to 740

pm

D. All

**Answer: D**



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**150.** Decomposition of urea into  $NH_3$  and

$CO_2$  is followed by the action of enzyme :

A. Urease

B. Pepsin

C. Trysin

D. None

**Answer: A**



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**151.** Hydrolysis of protein in stomach and in intestine takes place due to action of enzyme.

A. Pepsin in stomach, trypsin in intestine

B. Trypsin in stomach, pepsin in intestine

C. Both (a) and (b)

D. None

**Answer: A**



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**152.** Physical adsorption increases when :

A. Temperature increases

B. Temperature decreases

C. Temperature remains constant

D. None

**Answer: B**



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**153.** Pd can adsorb 900 times its volume of hydrogen. This is called:

A. Absorption

B. Adsorption

C. Occlusion

D. Both (b) and (c)

**Answer: D**



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**154.** The phenomenon in which adsorption and absorption takes place simultaneously is called

A. Desorption

B. Sorption

C. Both (a) and (b)

D. None

**Answer: B**



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**155. Physical adsorption:**

A. Is reversible

B. Decreases with temperature

C. Is exothermic

D. All

**Answer: D**



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**156. Chemical adsorption :**

A. Is exothermic

B. Irreversible

C. Unilayer

D. All

**Answer: D**



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**157. Which is correct ?**

- A. Langmuir adsorption is highly specific
- B. van der Waals. adsorption is reversible
- C. Both (a) and (b) are exothermic
- D. All



**Answer: D**



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**158.** Physical adsorption is :

- A. Highly specific
- B. Reversible
- C. Irreversible
- D. Monolayer adsorption

**Answer: B**



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**159.** The minimum energy level necessary to permit a reaction to occur is :

- A. Internal energy
- B. Threshold energy
- C. Activation energy
- D. Free energy

**Answer: B**



**160.** According to Langmuir adsorption isotherm the amount of gas adsorbed at very high pressure :

- A. Reaches a constant limiting value
- B. Goes on increasing with pressure
- C. Goes on decreasing with pressure
- D. Increases first and decreases later with pressure

**Answer: A**



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**161.** Which of the following type of catalysis can be explained by the adsorption theory ?

- A. Homogenous Catalysis
- B. Acid-Base catalysis
- C. heterogeneous catalysis
- D. Enzyme catalysis

**Answer: C**



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**162.** The reaction rate at a given temperature is slower when :

- A. The energy of activation is higher
- B. The energy of activation is lower
- C. Entropy changes

D. Initial concentration of the reaction  
remains constant

**Answer: A**



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**163.** Which is not correct for catalyst It :

A. Enhances the rate of reaction in both  
directions

B. Changes enthalpy of reaction

C. Reduces activation energy of reaction

D. Specific in nature

**Answer: B**



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**164.** Which of the following does not involve a catalyst ?

A. Haber's process

B. Thermite process

C. Ostwald's process

D. Contact process

**Answer: B**



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**165.** Which plot is the adsorption isobar for chemisorption where  $X$  is the amount of gas adsorbed on mass  $m$  (at constant pressure) at temperature  $T$ :



A. 

B. 

C. 

D. 

**Answer: C**



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**166.** What is the action of hydrochloric acid on potassium permanganate ?

- A. A promoter
- B. A positive catalyst
- C. An auto-catalyst
- D. None of the above

**Answer: C**



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**167. Which statement is correct ?**

- A. Physical adsorption is multi-layer, non-directional and non-specific
- B. Chemical adsorption is unilayer
- C. Chemical adsorption is more stronger than physical adsorption
- D. All

**Answer: D**



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**168.** Hydrolysis of sucrose ( $C_{12}H_{22}O_{11}$ ) by

invertase give :

A. Glucose

B. Fructose

C. Both (a) and (b)

D. None

**Answer: C**



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**169.** Hydrolysis of maltose ( $C_{12}H_{22}O_{11}$ ) by invertase give :

A. Glucose

B. Fructose

C. Both (a) and (b)

D. None

**Answer: A**



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**170.** Zeolites are :

A. Water softener

B. Catalyst

C. Both (a) and (b)

D. None

**Answer: C**



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171. Which characteristic of adsorption is wrong ?

A. Physical adsorption in general decreases with temperature

B. Physical adsorption in general increases with increase temperature

C. Physical adsorption is a reversible process

D. Adsorption is limited to the surface only

**Answer: B**



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**172.** The activity and selectivity of zeolites as catalyst is based on :

- A. Their pore size
- B. Size of their cavities on the surface
- C. Both (a) and (b)
- D. None



**Answer: C**



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**173.** A catalyst is more effective in :

A. Finely powdered state

B. Colloidal state

C. Rough surface

D. All

**Answer: D**



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**174.** The function of negative catalyst is:

- A. To remove the active intermediate from the reaction
- B. To terminate the chain reaction
- C. Both (a) and (b)
- D. None

**Answer: C**



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**175.** Catalytic poisoners are usually the same as:

- A. Poison for human body
- B. Enzyme for human body
- C. Vitamins for human body
- D. None

**Answer: A**



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176.  $BaSO_4$  acts as \_\_\_\_\_ for Pd in Rosenmunds reaction :

- A. Promoter
- B. Poison
- C. Auto catalyst
- D. None

**Answer: B**



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177. Mutarotation of glucose is an example of :

- A. Acid-base catalysis
- B. Homogeneous catalysis
- C. Both (a) and (b)
- D. None

**Answer: C**



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**178.** A dilute solution of litmus becomes colourless on shanking with charcoal. This is due to:

A. Absorption

B. Adsorption

C. Chemical reaction

D. Both (a) and (b)

**Answer: B**



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**179.** Dyeing of fibre involves the process of :

A. Adsorption

B. Absorption

C. Sorption

D. All

**Answer: D**



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

A. suspension  $>$  colloidal  $>$  true solution

B. true solution  $>$  suspension  $<$   
colloidal

C. suspension  $>$  colloidal solution = true  
solution

D. None of the above



**Answer: A**



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**181.** In colloidal state, particle size ranges from

:

A. 1 to  $10A^\circ$

B. 20 to  $50A^\circ$

C. 10 to  $1000A^\circ$

D. 1 to  $280A^\circ$

**Answer: C**



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**182.** A colloidal system has particles of what size ?

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

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

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

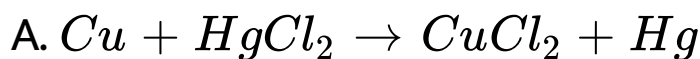
D.  $10^{-6}m$  to  $10^{-9}m$

**Answer: D**

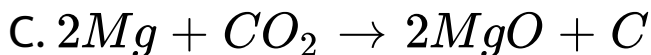
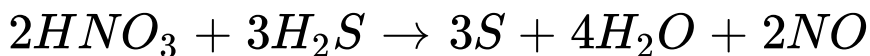


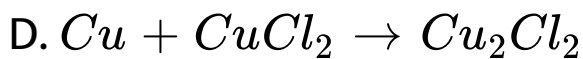
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**183.** Out of the following which reaction gives a colloidal solution ?



B.





**Answer: B**



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**184.** Colloidal solution of silver is prepared by :

A. colloidal mill

B. double decomposition method

C. Bredig's method

D. peptization

**Answer: C**



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**185.** Cloud or fog is an example of colloidal system of:

- A. liquid dispersed in gas
- B. gas dispersed in gas
- C. solid dispersed in gas
- D. solid dispersed in liquid

**Answer: A**



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**186.** Which is a natural colloid ?

A. sodium chloride

B. urea

C. cane sugar

D. blood

**Answer: D**



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**187.** Which of the following forms a colloidal solution in water ?

A. NaCl

B. glucose

C. starch

D. barium nitrate

**Answer: C**



**188.** Which of the following is a colloid ?

A. Sugar solution

B. Urea solution

C. Silicic acid

D. NaCl solution

**Answer: C**





**189.** Which one of the following is not a colloid ?

A. milk

B. Blood

C. ice-cream

D. urea solution

**Answer: D**



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

A. smoke

B. ink

C. blood

D. air

**Answer: D**



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**191. Milk is:**

A. fat dispersed in milk

B. fat dispersed water

C. water dispersed in fat

D. water dispersed in oil

**Answer: B**



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**192.** Milk is a colloid in which :

A. a liquid dispersed in liquid

B. a solid dispersed in liquid

C. a gas is dispersed in liquid

D. some sugar is dispersed in water

**Answer: A**



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**193.** An aerosol is a colloidal system of :

A. a liquid dispersed in a solid

B. a solid dispersed in a gas

C. a gas is dispersed in liquid

D. None of the above

**Answer: B**



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**194.** If dispersed phase is a liquid and the dispersion medium is a solid the colloid is known as :

A. a sol

B. a gel

C. aerosol

D. emulsion

**Answer: B**



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**195.** Which colloidal system is present in butter ?



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**196.** Why colloid cannot be filtered by ordinary filter paper ?



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**197.** Give an example of emulsion.



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



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**199.** What is the size of colloidal particle ?



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**200.** Boot polish is what type of colloid.





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**201.** Define gold number.



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**202.** What is the effect of increase of temperature on viscosity of liquid ?



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**203.** Define peptisation.



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**204.** What is dialysis ?



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**205.** What is electrophoresis? How many types of electrophoresis you have studied?



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206. What is *Sol* ?



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207. Give an example of emulsion.



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208. Define Hardy -Schulze rule.



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209. What is sorption ?



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210. Boot polish is \_\_\_\_\_ type of colloid ?



[Watch Video Solution](#)

211. .... is an example of emulsion.



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**212.** The phenomenon of precipitation of a colloidal solution by the addition of excess of an electrolyte is called \_\_\_\_\_, which is due to \_\_\_\_\_



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**213.** The zig-zag motion of colloidal particles is called \_\_\_\_\_



**Watch Video Solution**

**214.** The scattering of light on the surface of colloidal particle is \_\_\_\_\_.



**Watch Video Solution**

**215.** The colloidal system of liquid dispersed in solid is called \_\_\_\_\_.



**Watch Video Solution**

**216.** What is an emulsion ?



**Watch Video Solution**

**217.** Rubber is a solidsol



**Watch Video Solution**

**218.** Soda-water is an Aerosol



**Watch Video Solution**

**219.** Toothpaste is solisol.



**Watch Video Solution**

**220.** Milk is an aerosol. True /False.



**Watch Video Solution**

**221.** Paint is a liquid form. Is it true or false?



**Watch Video Solution**



**222.** Why activated charcoal is a better absorbent than ordinary charcoal ?



**Watch Video Solution**

**223.** Why cannot colloidal sol. Be filtered by ordinary filter paper ?



**Watch Video Solution**

**224.** When rivers meet the ocean, they generally form delta, give reasons.



**Watch Video Solution**

**225.** Why colloid cannot be filtered by ordinary filter paper ?



**Watch Video Solution**

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



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**227.** Give the dispersion medium and dispersed phase of the following : (i) smoke



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**228.** Give the dispersion medium and dispersed phase of the following : (ii) milk.



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



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



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**231.** Distinguish between absorption and adsorption.



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**232.** What is gold number?



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



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**234.** How will you prepare an aqueous colloidal solution of sulphur or arsenious sulphide ?



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**235.** Describe briefly how gold sol can be prepared.



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**236.** What is Tyndall effect? What is it due to?



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**237.** What are lyophobic and lyophilic solids?



**Watch Video Solution**

**238.** What are lyophobic and lyophilic solids?



**Watch Video Solution**

**239.** What is Tyndal effect ? Explain with diagram.



**Watch Video Solution**

**240.** Write a note on cataphoresis.



**Watch Video Solution**

**241.** Write what you know about coagulation



**Watch Video Solution**



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



**Watch Video Solution**

**243.** Distinguish between absorption and adsorption.



**Watch Video Solution**

244. Explain different types of adsorptions.



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245. A auto-catalyst is:

- A. Catalyst for catalyst
- B. One which starts a reaction
- C. One in which one of the products of the reaction acts as a catalyst
- D. Which etards a chemical reaction.

**Answer: C**



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**246.** The catalyst used in the manufacture of nitric acid by Ostwald process is:

A. Mo

B. Pt

C.  $V_2O_5$

D. Fe

**Answer: B**



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**247.** Which is an example of auto-catalyst ?

- A. Hydrolysis of methyl acetate
- B. Decomposition of TNG
- C. Oxidation of oxalic by  $KMnO_4$
- D. All

**Answer: D**



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**248.** A substance which completely destroys or reduces the activity of the catalyst is called:

- A. Catalyst
- B. Inhibitor
- C. Promotor
- D. Catalyst poison

**Answer: B**



249. Which is not true in case of catalyst ?

A. The catalyst is unchanged chemically at the end of a reaction

B. The catalyst accelerates the reaction

C. In a reversible reaction, the catalyst alters the equilibrium position

D. A small amount of catalyst is often sufficient to bring about a large change

in reaction

**Answer: C**



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**250.** 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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**251.** 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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**252.** Which acts as negative catalyst:

A. Lead tetraethyl as antiknock compound

B. Glycerol in decomposition of  $H_2O_2$

C. Ethanol in oxidation of chloroform

D. All

**Answer: D**



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**253.** A biological catalyst is essentially a/an:

A. Carbohydrate

B. Enzyme

C. Amino acid

D. Nitrogen molecule

**Answer: B**



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**254.** Enzyme are:

A. Moulds

B. Complex nitrogen compounds

C. Micro-organisms

D. Inorganic sulphides

**Answer: B**



**Watch Video Solution**

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

A. Cu

B. Mo

C. Fe

D. Pt

**Answer: A**



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

A. Auto-catalysis

B. Anti-catalysis

C. Negative catalysis

D. Acid catalysis

**Answer: A**



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**257.** For adsorption of gas on solid surface the plots of  $\log x/m$  vs  $\log P$  is linear with a slope equal to :

A. K

B.  $\log K$

C.  $\ln k$

D.  $1/n$  (n being integer)

**Answer: D**



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**258.** 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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**259.** 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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**260.** Which is used as catalyst to retard the oxidation of chloroform ?

A.  $H_2O$

B.  $C_2H_5OH$

C. Glycerol

D.  $H_2SO_4$

**Answer: B**



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

A. Enzymes

B.  $CO_2$

C. Air

D.  $N_2$

**Answer: A**



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

A. Promoter

B. Catalyst

C. Activator

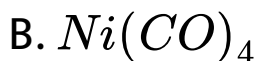
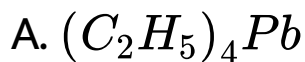
D. Initiator

**Answer: B**



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



C. Both (a) and (b)

D. None

**Answer: C**



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**264.** Enzyme are:

A. Substances made by chemists to activate washing power

B. Very active vegetable catalysts

C. Catalysts found in organisms

D. Synthetic catalysts

**Answer: C**



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**265.** Who coined the term catalysis and Nobel Prize ?

A. Berzelius

B. Kolbe

C. Wholer

D. Rutherford

**Answer: A**



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**266.** A catalyst:

A. Increases the energy change in the reaction

B. Decreases the energy change in the reaction

C. Does not Increases or decrease the energy change in the reaction

D. Can either decrease or increases the energy change

**Answer: C**



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267. Which statement is wrong?

A. Haber's process of  $NH_3$  requires iron as catalyst.

B. Substances made by chemists to activate washing power

C. Hydrogenation of oils requires iron as catalyst

D. Oxidation of  $SO_2$  to  $SO_3$  requires

$V_2O_5$

**Answer: C**



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**268.** 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 extent.

D. Increases the rate of the forward and backward reaction equally

**Answer: D**



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**269.** A catalyst is used in a reaction to :

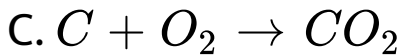
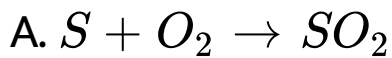
- A. Change the nature of reaction products
- B. Increases the reaction yield
- C. Decrease the need for reactants
- D. Decrease the time required for the reaction

**Answer: D**



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**270. Which requires catalyst ?**



D. All

**Answer: B**



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**271.** During hydrogenation of oils catalyst commonly used is:

A.  $Pd$  or  $CuCl_2$

B. Finely divided Ni

C. Fe

D.  $V_2O_5$

**Answer: B**



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**272.** 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. Participates in the reaction and provides at easier pathway for the same

D. Is always in the same phase as the reactants

**Answer: C**



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273. 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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274. The efficiency of an enzyme in catalysing a reaction is due to its capacity :

A. To form a enzyme-substrate complex

B. To decreases the bond energies of the substrate molecule

C. To change the shape of the substrate molecule

D. None

**Answer: A**



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275. 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**



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**276.** The reaction in which catalyst and reactant have one phase are known as:

- A. Gaseous reaction
- B. Homogeneous catalytic reaction
- C. Heterogeneous catalytic reaction
- D. None

**Answer: B**



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277. 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: C**



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

- A. Increases
- B. Decreases
- C. Remains constant
- D. Becomes infinite

**Answer: B**



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**279.** 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**



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**280.** The rate of a certain biochemical reaction catalysed 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**



**281.** Which statement is correct ?

A. A catalyst increases the rate of a reaction by decreasing the rate of backward reaction.

B. The reaction is fast if the activation energy of a reaction is low

C. The activation energy of a forward reaction can never be smaller than that



of the backward reaction

D. Reaction rate increases with temperature because the activation energy decreases at high temperature

**Answer: B**



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

A. Temperature

B. Catalyst

C. Concentration of reaction

D. None

**Answer: D**



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**283.** 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**



Watch Video Solution

284. 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**



285. The enzyme ptyalin used for digestion of food is present in :

- A. Saliva
- B. Blood
- C. Intestine
- D. Adrenal glands

**Answer: A**



**286.** Enzyme catalyst are:

- A. Highly specific in nature
- B. Non-specific
- C. Solids
- D. Always liquid

**Answer: A**



**Watch Video Solution**

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

A.  $CO_2$

B. NO

C. CO

D.  $N_2$

**Answer: C**



**Watch Video Solution**

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

- A. Enzymes are in colloidal state
- B. Enzymes are catalysts
- C. Enzymes can catalyze any reaction
- D. Urease is an enzyme

**Answer: C**



**Watch Video Solution**



289. Which acts poison to platinum ( a catalyst ) in the manufacture of  $H_2SO_4$  by contact process?

A. Arsenious oxide

B.  $CO_2$

C. CO

D. Sodium sulphide

**Answer: A**



**Watch Video Solution**

**290.** Modern theory of heterogeneous catalysis is:

A. Intermediate compound formation theory

B. Adsorption theory

C. A combination of two theories, i.e. intermediate compound formation and adsorption theory

D. None

**Answer: C**



**Watch Video Solution**

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

A.  $10^2$  times

B.  $10^{-2}$  times

C.  $10^5$  times

D.  $10^{12}$  times

**Answer: D**



**Watch Video Solution**

**292.** Which statement is not correct ?

- A. Physical adsorption is due to van der Waals' forces
- B. Physical adsorption decreases at high temperature and low pressure
- C. Physical adsorption is reversible

D. Adsorption energy for a chemical adsorption is generally lesser than that of physical adsorption

**Answer: D**



**Watch Video Solution**

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

A. Adsorbent

B. Adsorbate

C. Absorber

D. None

**Answer: A**



**Watch Video Solution**

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

A. Emulaification

B. Adsorption

C. Absorption

D. Either of them

**Answer: D**



**Watch Video Solution**

**295.** 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**



**Watch Video Solution**

**296.** A catalyst in the finely divided form 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**



**Watch Video Solution**

**297.** 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**



**Watch Video Solution**

**298.** When a catalyst is added to a system the:

A. Equilibrium concentration are increased

B. Equilibrium concentration 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**



**Watch Video Solution**

**299.** Negative catalyst is one :

- A. Which retard the rate of reaction
- B. Takes the reaction in forward direction
- C. Promotes the side reaction
- D. None

**Answer: A**



**Watch Video Solution**

300. Which is used in the Haber's process for the manufacture of  $NH_3$  ?

A.  $Al_2O_3$

B. Fe+Mo

C. CuO

D. Pt

**Answer: B**



**Watch Video Solution**

**301.** 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 reactants

D. There is no change in the energy of activation

**Answer: D**



**Watch Video Solution**

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

A. Depends upon the concentration of catalyst

B. Independent of the concentration of catalyst

C. Depends upon the free energy change

D. Depends upon physical state of the catalyst

**Answer: A**



**Watch Video Solution**

**303.** Hydrolysis of cane sugar is catalysed by :



A.  $H^+$

B. Mineral acids

C. Enzymes

D. All

**Answer: D**



**Watch Video Solution**

**304.** Platinum is not used as a catalyst in the :

A. Oxidation of  $CH_3OH$  to HCHO

B. Oxidation of  $SO_2$  to  $SO_3$

C. Combination of  $H_2$  and  $I_2$  to form HI

D. Synthesis of  $NH_3$  from  $N_2$  and  $H_2$

**Answer: D**



**Watch Video Solution**

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

A. Detainer

B. Stopper

C. Promoter

D. Inhibitor

**Answer: D**



**Watch Video Solution**

**306.** 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

**Answer: C**



**Watch Video Solution**

307. 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 enzyme raises activation energy

**Answer: D**





Watch Video Solution

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

A. Adsorbent

B. Adsorbate

C. Adsorber

D. None

**Answer: B**



Watch Video Solution

**309.** 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



Watch Video Solution

**310.** 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**



**Watch Video Solution**

**311.** 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**



**Watch Video Solution**

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

A. Oxidising agent

B. Reducing agent

C. Acid catalyst

D. None

**Answer: C**



**Watch Video Solution**

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

A. To increases 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**



**Watch Video Solution**

**314.** Chemisorption is :

A. Multimolecular in nature

B. Reversible

C. Often highly specific and directional

D. Not very specific

**Answer: C**



**Watch Video Solution**

**315.** For an exothermic reaction :

A. Energy of reaction is  $>$  energy of products

B. Energy of reaction is  $<$  energy of products

C. Energy of reaction is  $=$  energy of products

D. None

**Answer: A**



Watch Video Solution

**316.** Catalytic poisoners act by :

A. Coagulating the catalyst

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**



**Watch Video Solution**

**317.** 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**



**Watch Video Solution**

**318.**  $KClO_3$  on heating decomposes into  $KCl$  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**



**Watch Video Solution**

**319.** Which is a homogeneous system ?

A. A solution of sugar in water

B. Concrete

C. Muddy water

D. Bread

**Answer: A**



Watch Video Solution

**320.** The catalyst used in the contact process of sulphuric acid is :

A. Copper

B. Iron

C. Vanadium pentoxide or Pt (asbestos)

D. Ni

**Answer: C**



**321.** Which explains the effect of a catalyst on the rate of a reversible reaction ?

A. It provides a new reaction pathway with a lower activation energy

B. It moves the equilibrium position to the right

C. It increases the kinetic energy of the reacting molecules

D. It decreases the rate of the reverse reaction

**Answer: A**



**Watch Video Solution**

**322.** The catalyst used in the contact process of sulphuric acid is :

A. Platinum

B. Nitric oxide

C. Nickel

D. Vanadium pentoxide

**Answer: B**



**Watch Video Solution**

**323.** Adsorption is accompanied by:

A. Decrease in entropy of system

B. Decrease in enthalpy

C. The value of  $\Delta S T$  is negative

D. All of these

**Answer: D**



**Watch Video Solution**

**324.** Which gas is adsorbed strongly by charcoal ?

A. CO

B.  $N_2$

C.  $H_2$

D.  $NH_3$

**Answer: D**



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**325.** The extent of adsorption of a gas on a solid depends on :

A. A nature of gas

B. Pressure of gas

C. Temperature of the system



D. All

**Answer: D**



**Watch Video Solution**

**326.** Which obeys mono molecular layer formation during adsorption ?

A. Langmuir adsorption

B. Chemical Adsorption

C. Chemisorption

D. All

**Answer: D**



**Watch Video Solution**

**327.** Which forms multimolecular layers during adsorption ?

A. Physical adsorption

B. van der Waals's adsorption

C. Freundlich adsorption

D. All

**Answer: D**



**Watch Video Solution**

**328.** Physical adsorption become appreciable at :

A. High temperature

B. Room temperature

C. Low temperature

D. None

**Answer: C**



**Watch Video Solution**

**329.** The curve showing the variation of adsorption with pressure at constant temperature is called :

A. An isostere

B. Adsorption isobar

C. Adsorption isotherm

D. All

**Answer: B**



**Watch Video Solution**

**330.** Adsorption is accompanied by:

A. Decrease in entropy of system

B. Decrease in enthalpy of the system

C.  $T \Delta s$  for the process is negative

D. All

**Answer: D**



**Watch Video Solution**

**331.** Which adsorption takes place at low temperature ?

- A. Physical adsorption
- B. Chemical adsorption
- C. Both (a) and (b)

D. None

**Answer: A**



**Watch Video Solution**

**332.** Which is correct in case of van der Waal's adsorption ?

A. High temperature, low pressure

B. Low temperature, high pressure

C. Low temperature, low pressure

D. High temperature, high pressure

**Answer: B**



**Watch Video Solution**

**333.** An increase in the concentration of adsorbate at the surface relative to its concentration in bulk phase is called

A. Adsorption

B. Enthalpy



C. Absorption

D. None

**Answer: A**



**Watch Video Solution**

**334.** Which is an example of a heterogeneous catalysis ?

A. Formation of  $SO_3$  in the chamber process

B. Formation of  $SO_3$  in the contact process

C. Hydrolysis of an ester in the presence of

$H^+$  ions

D. Combination of  $H_2$  and  $Cl_2$  in the

presence of moisture

**Answer: B**



**Watch Video Solution**

**335.** ZSM-5 is used to convert :

- A. Alcohol to petrol
- B. Benzene to toluene
- C. Toluene to benzene
- D. heptane to toluene

**Answer: A**



**Watch Video Solution**

**336.** The decomposition of  $H_2O_2$  may be checked by adding a small quantity of phosphoric acid. This is an example of :

- A. Neutralization
- B. Negative catalysis
- C. Positive catalysis
- D. Catalytic poisoning

**Answer: B**



**Watch Video Solution**

**337.** In temporary poisoning, catalytic poisons act by:

A. Coagulating the catalyst

B. Chemically combining with any one of  
the reaction

C. Chemically combining with the catalyst

D. Getting physically adsorbed on the  
active centres of the catalyst

**Answer: D**



**Watch Video Solution**

**338.** Which equation represents Freundlich adsorption isotherm (physical adsorption) on the basis of this theory ?

A.  $\frac{x}{m} = K(P)^{1/n}$  where  $x$  is amount of gas adsorbed on mass ' $m$ ' at pressure  $P$

B.  $\frac{\log x}{m} = \log K + \frac{1}{n} \log P$

C.  $x/m = KP$  at low pressure and

$x/m = K$  at high pressure

D. All

**Answer: D**



**Watch Video Solution**

**339.** The amount of gas adsorbed physically on charcoal increases with :

A. Temperature and pressure

B. Temperature and decreases with  
pressure

C. Pressure and decreases with temperature

D. None

**Answer: C**



**Watch Video Solution**

**340.** Gas masks containing activated charcoal to remove poisonous gases from atmosphere acts on the principle of :



A. Adsorption

B. Absorption

C. Sorption

D. All

**Answer: A**



**Watch Video Solution**

**341.** Efficiency of a catalyst depends on its :

A. Particle size

B. Solubility

C. Molecular weight

D. None

**Answer: A**



**Watch Video Solution**

**342.** The enzyme which can catalyse the conversion of glucose to ethanol is :

A. Zymase

B. Invertase

C. Maltase

D. Diastase

**Answer: A**



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**343.** Enzyme catalysed reaction are :

A. Highly specific

B. Usually hydrolytic in nature

C. Usually occurs with evolution of gases

D. All

**Answer: D**



**Watch Video Solution**

**344.** Conversion of milk into curd is made by :

A. Diastase

B. Invertase

C. Mico derma bacilli

D. Lactic bacilli

**Answer: D**

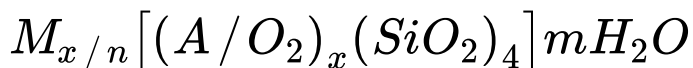


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**345. Zeolites :**

A. Are microporous aluminosilicates

B. Have general formula



C. Have pore size between 260 pm to 740

pm

D. All

**Answer: D**



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**346.** Decomposition of urea into  $NH_3$  and

$CO_2$  is followed by the action of enzyme :

A. Urease

B. Pepsin

C. Trysin

D. None

**Answer: A**



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**347.** Hydrolysis of protein in stomach and in intestine takes place due to action of enzyme.

A. Pepsin in stomach, trypsin in intestine

B. Trypsin in stomach, pepsin in intestine

C. Both (a) and (b)

D. None

**Answer: A**



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**348.** Physical adsorption increases when :

A. Temperature increases

B. Temperature decreases



C. Temperature remains constant

D. None

**Answer: B**



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**349.** Pd can adsorb 900 times its volume of hydrogen. This is called:

A. Absorption

B. Adsorption

C. Occlusion

D. Both (b) and ©

**Answer: D**



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**350.** The phenomenon in which adsorption and absorption takes place simultaneously is called

A. Desorption

B. Sorption

C. Both (a) and (b)

D. None

**Answer: B**



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**351. Physical adsorption:**

A. Is reversible

B. Decreases with temperature

C. Is exothermic

D. All

**Answer: D**



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**352. Chemical adsorption :**

A. Is exothermic

B. Irreversible

C. Unilayer

D. All

**Answer: D**



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**353.** Which is correct ?

- A. Langmuir adsorption is highly specific
- B. van der Waals' adsorption is reversible
- C. Both (a) and (b)
- D. All

**Answer: D**



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**354. Physical adsorption is :**

- A. Highly specific
- B. Reversible
- C. Irreversible
- D. Monolayer adsorption

**Answer: B**



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**355.** The minimum energy level necessary to permit a reaction to occur is :

- A. Internal energy
- B. Threshold energy
- C. Activation energy
- D. Free energy

**Answer: B**



**356.** According to Langmuir adsorption isotherm the amount of gas adsorbed at very high pressure :

- A. Reaches a constant limiting value
- B. Goes on increasing with pressure
- C. Goes on decreasing with pressure
- D. Increases first and decreases later with pressure



**Answer: A**



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**357.** Which of the following type of catalysis can be explained by the adsorption theory ?

- A. Homogeneous catalysis
- B. Acid-Base catalysis
- C. heterogeneous catalysis
- D. Enzyme catalysis

**Answer: C**



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**358.** The reaction rate at a given temperature is slower when :

- A. The energy of activation is higher
- B. The energy of activation is lower
- C. Entropy changes

D. Initial concentration of the reaction  
remains constant

**Answer: A**



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**359.** Which is not correct for catalyst It :

A. Enhances the rate of reaction in both  
directions

B. Changes enthalpy of reaction

C. Reduces activation energy of reaction

D. Specific in nature

**Answer: B**



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**360.** Which of the following does not involve a catalyst ?

A. Haber's process

B. Thermite process

C. Ostwald's process

D. Contact process

**Answer: B**



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**361.** Which plot is the adsorption isobar for chemisorption where  $X$  is the amount of gas adsorbed on mass  $m$  (at constant pressure ) at temperature  $T$ :

A. 

B. 

C. 

D. 

**Answer: C**

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**362.** In the titration between oxalic acid and acidified potassium permanganate, the manganous salt formed during the reaction

catalyses the reaction. The manganous salt acts as:

- A. A promoter
- B. A positive catalyst
- C. An auto-catalyst
- D. None of the above

**Answer: C**



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**363.** Which statement is correct ?

A. Physical adsorption is multi-layer, non-directional and non-specific

B. Chemical adsorption is unilayer

C. Chemical adsorption is more stronger than physical adsorption

D. All

**Answer: D**



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**364.** Hydrolysis of sucrose ( $C_{12}H_{22}O_{11}$ ) by invertase give :

A. Glucose

B. Fructose

C. Both (a) and (b)

D. None

**Answer: C**



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365. Hydrolysis of maltose ( $C_{12}H_{22}O_{11}$ ) by

invertase give :

A. Glucose

B. Fructose

C. Both (a) and (b)

D. None

**Answer: A**



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**366.** Zeolites are :

A. Water softener

B. Catalyst

C. Both (a) and (b)

D. None

**Answer: C**



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**367.** Which characteristic of adsorption is wrong ?

A. Physical adsorption in general decreases with temperature

B. Physical adsorption in general increases with temperature

C. Physical adsorption is a reversible process

D. Adsorption is limited to the surface only

**Answer: B**



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**368.** The activity and selectivity of zeolites as catalyst is based on :

- A. Their pore size
- B. Size of their cavities on the surface
- C. Both (a) and (b)
- D. None

**Answer: C**



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**369.** A catalyst is more effective in :

A. Finely powdered state

B. Colloidal state

C. Rough surface

D. All

**Answer: D**



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**370.** The function of negative catalyst is:

- A. To remove the active intermediate from the reaction
- B. To terminate the chain reaction
- C. Both (a) and (b)
- D. None

**Answer: C**



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**371.** Catalytic poisoners are usually the same as:

- A. Poison for human body
- B. Enzyme for human body
- C. Vitamins for human body
- D. None

**Answer: A**



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372.  $BaSO_4$  acts as \_\_\_\_\_ for Pd in

Rosenmunds reaction :

- A. Promoter
- B. Poison
- C. Auto catalyst
- D. None

**Answer: B**



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**373.** Mutarotation of glucose is an example of :

- A. Acid-base catalysis
- B. Homogeneous catalysis
- C. Both (a) and (b)
- D. None

**Answer: C**



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**374.** A dilute solution of litmus becomes colourless on shanking with charcoal. This is due to:

A. Absorption

B. Adsorption

C. Chemical reaction

D. Both (a) and (b)

**Answer: B**



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**375.** Dyeing of fibre involves the process of :

A. Adsorption

B. Absorption

C. Sorption

D. All

**Answer: D**



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

A. suspension > colloidal > true solution

B. true solution > suspension <  
colloidal

C. suspension > colloidal solution = true  
solution

D. None of the above

**Answer: A**



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**377.** In colloidal state, particle size ranges from

:

A. 1 to  $10A^\circ$

B. 20 to  $50A^\circ$

C. 10 to  $1000A^\circ$

D. 1 to  $280A^\circ$

**Answer: C**



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**378.** A colloidal system has particles of what size ?

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

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

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

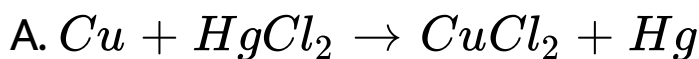
D.  $10^{-6}m$  to  $10^{-9}m$

**Answer: D**

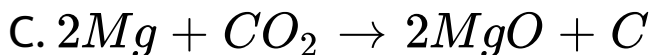
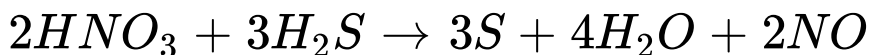


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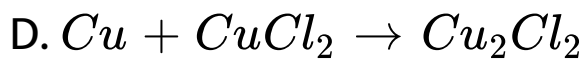
**379.** Out of the following which reaction gives a colloidal solution ?



B.







**Answer: B**



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**380.** Colloidal solution of silver is prepared by :

A. colloidal mill

B. double decomposition method

C. Bredig's method

D. peptization

**Answer: C**



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**381.** Cloud or fog is an example of colloidal system of:

- A. liquid dispersed in gas
- B. gas dispersed in gas
- C. solid dispersed in gas
- D. solid dispersed in liquid

**Answer: A**



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**382. Which is a natural colloid ?**

A. sodium chloride

B. urea

C. cane sugar

D. blood

**Answer: D**



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**383.** Which of the following forms a colloidal solution in water ?

A. NaCl

B. glucose

C. starch

D. barium nitrate

**Answer: C**



**384.** Which of the following is a colloid ?

A. Sugar solution

B. Urea solution

C. Silicic acid

D. NaCl solution

**Answer: C**



**385.** Which one of the following is not a colloid ?

A. milk

B. Blood

C. ice-cream

D. urea solution

**Answer: D**



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

A. smoke

B. ink

C. blood

D. air

**Answer: D**



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**387. Milk is:**

A. fat dispersed in milk

B. fat dispersed water

C. water dispersed in fat

D. water dispersed in oil

**Answer: B**



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**388.** Milk is a colloid in which :

A. a liquid dispersed in liquid

B. a solid dispersed in liquid

C. a gas is dispersed in liquid

D. some sugar is dispersed in water

**Answer: A**



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**389.** An aerosol is a colloidal system of :

A. a liquid dispersed in a solid

B. a solid dispersed in a gas

C. a gas is dispersed in air

D. None of the above

**Answer: B**



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**390.** If dispersed phase is a liquid and the dispersion medium is a solid the colloid is known as :

A. a sol

B. a gel

C. aerosol

D. emulsion

**Answer: B**



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