



# CHEMISTRY

**BOOKS - OSWAAL PUBLICATION**

**CHEMISTRY (KANNADA ENGLISH)**

## **SURFACE CHEMISTRY**

**Topic 1 Adsorption And Its Types Factors  
Affecting Adsorption And Applications Very Short  
Answer Type Questions**

**1. When is a solid a good adsorbent ?**



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## Topic 1 Adsorption And Its Types Factors Affecting Adsorption And Applications Very Short Answer Type Questions

1. What is collision frequency ?



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2. What is the effect of temperature chemisorption?



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3. Name two types of adsorption phenomenon.



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**Topic 1 Adsorption And Its Types Factors Affecting Adsorption And Applications Short Answer Type Questions**

1. (a) Mention two applications of adsorption.
- (b) What are emulsions? Give an example for  $O/W$  emulsion.
- (c) What is the cause for Brownian movement?



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2. What is an adsorption isotherm? Describe Freundlich adsorption isotherm.



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## Topic 1 Adsorption And Its Types Factors Affecting Adsorption And Applications Long Answer Type Questions

1. Write any two differences between physisorption and chemisorption.



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## Topic 2 Catalysis And Its Types Enzyme Catalysis Very Short Answer Type Questions

1. What do you mean by selectivity of a catalyst?



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2.  $2SO_2(g) + O_2(g) \xrightarrow{NO_2(g)}$  Is this reaction an example for Homogeneous or Heterogeneous catalysis.



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3. Name the enzyme used in the inversion of cane sugar.



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4. i) What type of adsorption involves Van der Waals force of attraction?

ii) Give an example for homogeneous catalysis.



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5. What is heterogeneous catalysis ? Give an example.



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6. Write the catalyst used in the decomposition of potassium chlorate to get potassium chloride and oxygen.



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7. What is shape selective catalysis? Give an example of such type of catalyst.



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## Topic 2 Catalysis And Its Types Enzyme Catalysis Short Answer Type Questions

1. Name the two groups into which phenomenon of catalysis can be divided. Give an example of each groups with the chemical equation involved.



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## Topic 2 Catalysis And Its Types Enzyme Catalysis Long Answer Type Questions

1. What do you mean by activity and selectivity of catalysis?



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## Topic 3 Colloids Types Of Colloids Characteristics And Preparation Of Colloids Very Short Answer Type Questions

1.  $As_2S_3$  sol is negatively charged. Between sodium nitrate and aluminium nitrate which one is needed in large quantity to coagulate the above sol ?



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2. State Hardy-Schulze rule.



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3. Name the dispersed phase in a sol.



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4. Name the dispersion medium in gel.



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5. Name the chemical reagent used to remove colloidal impurities from oil.



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6. Between  $CaSO_4$  and  $Ca_3(PO_4)_2$  which one is required in maximum concentration to coagulate positive sol.



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7. Out of potassium nitrate and aluminium nitrate. Which one is required in minimum concentration to coagulate arsenious sulphide Sol.



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8. Name the method used to determine the nature of charge on colloidal particles.



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9. Give one example each of sol and gel.



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**Topic 3 Colloids Types Of Colloids Characteristics And Preparation Of Colloids Short Answer Type Questions**

1. Write any two difference between lyophilic Sol and lyophobic Sol.



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2. What is Brownian movement ? What is the cause for it ?



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3. Define gold number.



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4. Name the type of colloid obtained when.

(i) A liquid is dispersed in a solid

(ii) A liquid is dispersed in a liquid.



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5. Comment on the statement that "colloid is not a substance but a state of substance".



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6. Why does leather get hardened after tanning ?



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7. Given four uses of emulsions.



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8. Explain the following terms with suitable examples (i) Alcosol, (ii) Aerosol and (iii) Hydrosol.



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9. How is Gold-sol prepared by Bredig's-arc method?



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## Topic 3 Colloids Types Of Colloids Characteristics And Preparation Of Colloids Long Answer Type Questions I

1. (a) Mention two applications of adsorption.  
(b) What are emulsions? Give an example for  $O/W$  emulsion.  
(c) What is the cause for Brownian movement?



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2. Name the phenomenon/effect for the following

i) Collidal particles are in zig zag motion.

ii) When an electrical potential is applied across two platinum electrodes dipping in a collidal solution, particles move towards one or the other electrodes.

iii) Scattering of light by collidal sol.



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3. With respect to a sol (a colloid) what is

(i) dialysis

(ii) electrophoresis

(iii) coagulation ?



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4. (a) What are lyophilic and lyophobic sols ?

Give one example for each.

(b) What is Tyndall effect ?



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5. What are emulsion ? What are their different types ? Give example of each type.



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6. Explain the following observations :

(i) A beam of light passing through a colloidal solution has a visible path.

(ii) Passing an electric current through a colloidal solution removes colloidal particles from it.

(iii) Ferric hydroxide sol coagulates on addition of potassium sulphate,



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7. What are micelles ? Give an example of a micelles system.



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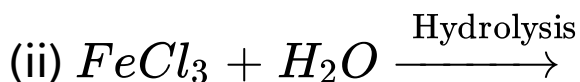
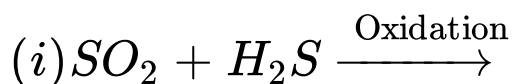
8. What are the applications of colloids.



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## Topic 3 Colloids Types Of Colloids Characteristics And Preparation Of Colloids Long Answer Type Questions Ii

1. (a) Complete and balance the following reaction



(b) Mention two characteristics of enzyme catalysis



(c) What is the sign of  $\Delta S$  for the adsorption of gas on solids?



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2. (a) What is coagulation of sol ? name two methods by which a lyophobic sol can be coagulated.

(b) What is the change in enthalpy and entropy during adsorption of gas on a solid ?



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3. (a) What is (a) multimolecular colloid (b) macromolecular colloid and (c) associated colloid ?

(b) Write the equation for the two steps involved in enzyme catalysis.



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4. (a) Describe electrophoresis with the help of a diagram.

(b) What is meant by shape selective catalysis ? Give an example of shape selective catalyst.



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5. (a) Give any three differences between physical adsorption and chemical adsorption.
- (b) What is (i) Tyndall effect (ii) Peptisation ?



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6. (a) Give any three differences between Physisorption and chemisorption
- (b) (i) Mention the role of alum in the

purification of drinking water.

(ii) Give an example of an oil dispersed in water emulsion.



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7. What are lyophilic and lyophobic sols ? Give are example of each type. Why are hydrophobic sols easily coagulated ?



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



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9. Action of soap is due to emulsification and micelle formation, Comment .



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**10.** Explain the following terms:

- (i) Electrophoresis (ii) Coagulation (iii) Dialysis  
(iv) Tyndall effect.



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**11.** A house wife while working in the kitchen get a cut on the finger. It started bleeding and become panic. She immediately called her neighbour. She had kept ferric chloride in her house. She immediately applied it on the

affected area and the bleeding stopped.

(i) What is the chemical formula of ferric chloride ?

(ii) Why did bleeding stop on applying it on the affected finger?

(iii) What is the name of the phenomenon involved ?

(iv) What is the value associated with this from the point of view of chemist?



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**12.** Radha and Meera are fast friends. They both study in class XII. Radha is a student of science while Meera follows commerce stream. One day, when they were playing, Radha got hurt and started bleeding. Meera took her to her house and applied some alum on the cut. The bleeding stopped immediately.

(i) Why did bleeding stop when alum was applied on the cut ?

(ii) What are the values associated with Meera's decision to take Radha to her house and apply alum on her cut ?





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**13.** Reetu is purely vegetarian but her husband Rohit likes non-vegetarian food. He regularly buys nonvegetarian food (fish, meet, eggs etc.) and store it in fridge. The intermixing of odours creates problem for Reetu. Their daughter Rihana is a student of science. One day Rihana suggested her mother to put some small pieces of charcoal in the fridge as she thinks that this will solve the problem to some extent.

(i) Do you think by putting some small pieces of charcoal in the fridge will solve the problem of intermixing of odours. Give reason for your answer.

(ii) What are the values associated with Rihana's suggestion ?



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**14.** On visit to your native village, you find that lot of smoke, dust and some other gases are coming out of the chimney of a recently set up

factory near the village.

(i) As a chemistry student, what method you will suggest the factory owner to manage dust and smoke ?

(ii) What is the basic principle involved in your suggestion ?

(iii) What values are associated with your advice ?



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