CBSE EXAMINATION PAPER-2022

CHEMISTRY

(Solved)

Time allowed : 3 hours | Maximum Marks : 3

General Instructions :

Read the following instructions carefully and follow them :

i. This question paper contains **2 questions.** All questions are **compulsory.**

ii. This question paper is divided into **2 sections.**

iii. **Section A** – questions number **1 to 1** are short answer Each question carries **3 marks.**

iv. **Section B** – questions number **2 to 2** are case based questions

v. There is no overall choice given in the question paper. However, an internal choice has been provided in few questions.

vi. Use of calculator is NOT allowed.

Section A

Question 1.

Write three differences between Lyophobic sol and Lyophilic sol.

[3 Marks]

Answer: Lyophobic sols and lyophilic sols are two distinct types of colloidal solutions that differ significantly in their properties and behaviors. Firstly, lyophobic sols, such as those formed by metal particles in water, have low affinity for the dispersion medium, making them less stable and more prone to coagulation. In contrast, lyophilic sols, like gelatin or starch in water, have a high affinity for the solvent and are more stable due to strong interaction with the medium. Secondly, the preparation of lyophobic sols usually involves physical methods, such as dispersion or grinding, while lyophilic sols can be prepared through chemical reactions or by simply dissolving the solute in the solvent. Lastly,

lyophilic sols exhibit a greater viscosity than the dispersion medium due to their larger particle size and interactions, whereas lyophobic sols typically behave more like the solvent, exhibiting lower viscosity. This highlights their differing characteristics and applications in various scientific and industrial fields.

Section B

Question 2. Amines constitute an important class of organic compounds derived by replacing one or more hydrogen atoms of ammonia molecule by alkyl/aryl groups. Amines are usually formed from nitro compounds, halides, amides, etc. They exhibit hydrogen bonding which influences their physical properties. Alkyl amines are found to be stronger bases than ammonia. In aromatic amines, electron releasing and withdrawing groups, respectively increase and decrease their basic character. Reactions of amines are governed by availability of the unshared pair of electrons on nitrogen. Influence of the number of hydrogen atoms at nitrogen atom on the type of reactions and nature of products is responsible for identification and distinction between primary, secondary and tertiary amines. Reactivity of aromatic amines can be controlled by acylation process.