

Holiday Homework

Class—XII

Chemistry (2024-25)

- 1) Complete your investigatory project (except the observation part) in loose sheets including objective, material/chemicals, basic principle, procedure, conclusion and bibliography on the topic assigned in the class.
- 2) Answer all the questions based on “ Organic Chemistry” (Haloalkanes and Haloarenes, Alcohols, Phenols and Ethers) from the last three years and this year CBSE question papers (2021, 2022 , 2023 and 2024) in your Chemistry register.
- 3) Make a list of all name reactions from the chapters (a) Haloalkanes and Haloarenes (b) Alcohol, Phenols and Ethers in alphabetical order in your Chemistry register.
- 4) Read newspaper daily to extract scientific information and also to know what is happening around us .
- 5) Do the following assignment questions in your assignment register.

Haloalkanes and Haloarenes

- 1) An acid having molecular formula $C_3H_5O_2Br$ is optically active. What is its structure?
- 2) An organic compound with molecular formula C_4H_9Br is treated with aq. KOH. The rate of reaction depends on the concentration of the compound A only. When another optically active isomer B of this compound was treated with aq. KOH solution, the rate of reaction was found to depend on the concentration of compound and KOH both.
 - (i) Write down the structural formula of both A and B.
 - (ii) Out of these two compounds which one will be converted to the product with inverted configuration?
- 3) Carry out the following conversions:
 - a) 2- Methylpent-1-ene to 2- Methylpentan-2-ol.
 - b) Chlorobenzene to Benzene.
 - c) Ethyl chloride to propanoic acid.

Alcohols, Phenols and Ethers

- 1) What is power alcohol? Where it is used?

- 2) Why are ethers relatively less reactive compounds?
- 3) How many isomers are possible for the compound with the molecular formula $C_4H_{10}O$? Which one is optically active and why?
- 4) Phenol is acidic but does not react with sodium bicarbonate solution. Give reason.
- 5) An organic compound A reacts with thionyl chloride to give compound B. B reacts with magnesium to form a Grignard reagent which is treated with acetone and the product is hydrolysed to give 2-methyl-2-butanol. What are A and B compounds?
- 6) When t-butanol and n-butanol are separately treated with a few drops of dilute $KMnO_4$, in one case only the purple color disappears and a brown ppt. is formed. Which of the two alcohols gives the above reaction and what is the brown ppt.?
- 7) A compound (A) with molecular formula $C_4H_{10}O$ on oxidation forms compound (B). The compound (B) gives positive iodoform test and on reaction with CH_3MgBr followed by hydrolysis gives (C). Identify A, B and C and give the sequence of reactions.