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FREQUENTLY ASK QUESTIONS IN BOARD EXAMINATION (XII)

SUBJECT: CHEMISTRY

CHAPTER NAME:

1.Give reasons:

(i) C—Cl bond length in chlorobenzene is shorter than C—Cl bond length in CH_3—Cl.

(ii) The dipole moment of chlorobenzene is lower than that of cyclohexyl chloride.

(iii) SN^1 reactions are accompanied by racemization in optically active alkyl halides.

Name the following according to IUPAC system :

(iv) $(CH_3)_3\ CCH_2Br$

(V) $CH_2 = CHCH_2Br$

2. The following compounds are given to you:

2-Bromopentane, 2-Bromo-2-methylbutane, 1-Bromopentane

(i) Write the compound which is most reactive towards SN^2 reaction.

(ii) Write the compound which is optically active.

(iii) Write the compound which is most reactive towards B-elimination reaction.

(iv) Illustrate Sandmeyer's reaction with the help of a suitable example.

3. How would you differentiate between S<subN^1 and SN^2 mechanisms of substitution reactions? Give one example of each.

4. Account for the following:

(a) The dipole moment of chlorobenzene is lower than that of cyclohexyl chloride.

(b) Alkyl halides, though polar, are immiscible with water.

(c) Grignard's reagents should be prepared under anhydrous conditions.

(d) Chlorobenzene is extremely less reactive towards a nucleophilic substitution reaction. Give two reasons for the same.

5.How can the following conversions be carried out :

(i) Aniline to bromobenzene

(ii) Chlorobenzene to 2-chloroacetophenone

(iii) Chloroethane to butane

(iv) Benzyl chloride to benzyl alcohol,

(V) Methyl magnesium bromide to 2-methyl- propan-2-ol.

6.(a) Give reasons for the following :

(i) Phenol is more acidic than methanol.

(ii) The C—O—H bond angle in alcohols is slightly less than the tetrahedral angle (190°28′).

(b) Give simple chemical tests to distinguish between the following pairs of compounds:

(i) Ethanol and Phenol

(ii) Propanol and 2-methylpropan-2-ol

7. Write the formula of reagents used in the following reactions:

(i) Bromination of phenol to 2,4,6-tribromophenol

(ii) Hydroboration of propene and then oxidation to propanol.

(b) Arrange the following compound groups in the increasing order of their property indicated:

(i) p-nitrophenol, ethanol, phenol (acidic character)

(ii) Propanol, Propane, Propanal (boiling point)

8. (a) Write the mechanism of acid dehydration of ethanol to yield ethene

(b) Explain the following with an example in each :

(i) Kolbe's reaction

(ii) Reimer-Tiemann reaction

9. (a) How are the following conversions carried out?

(i) Propene → 4 Propan-2-ol

(ii) Ethylmagnesium chloride → 4 Propan-l-ol

(iii) Benzyl chloride → Benzyl alcohol

(b)Explain the following behaviours :

(i) Alcohols are more soluble in water than the hydrocarbons of comparable molecular masses.

(ii) Ortho-nitrophenol is more acidic than ortho-methoxyphenol.

10. (a) Draw the structure and name the product formed if the following alcohols are oxidized. Assume that an excess of oxidising agent is used.

(i) $CH_3CH_2CH_2CH_2OH$

(ii) 2-butanol

(iii) 2-methyl-l-propanol

(b) 2-Propanol is a secondary alcohol. When it reacts with I_2 in NaOH, it forms a yellow ppt of iodoform but 2-methyl-2 propanol does not respond to this test. Why?