Chemistry Revision Test

Time: 1 hr

Max Marks: 30

Q1.

(a) Name the following according to IUPAC system and classify them primary, secondary and tertiary halides:

(i) $(CH_3)_2CHCH(Cl)CH_3$

(ii) $CH_3CH_2CH(CH_3)CH(C_2H_5)Cl$

(iii) $CH_3CH_2C(CH_3)_2CH_2I$

(b) Give the IUPAC names of the following compounds:

i) $CH_3CH(Cl)CH(Br)CH_3$

ii) $ClCH_2C{\equiv}CCH_2Br$

(c) Write the structures of the following organic halogen compounds

1. *p-Bromochlorobenzene*
2. 1-Chloro-4-ethylcyclohexane
3. 1,4-Dibromobut-2-ene
4. 4-tert-Butyl-3-iodoheptane

4 marks

Q2. Write the isomers of the compound having formula C_4H_9Br.:

4 marks

Q3.

A). Explain why:

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

(b) alkyl halides, though polar, are immiscible with water?

(c) Grignard reagents should be prepared under anhydrous conditions

3 marks

B) What happens when?

(a).2Bromo-2 Methyl propane reacts with Alcoholic KOH.

(b).Sodium phenoxide reacts with chloroethane.

3 marks

C) How you will convert:

(a). Benzene to diphenyl

(b). Benzene to diphenyl

(c). Aniline to phenylisocyanide.

3 marks

Q4 Give reasons:

(i).Alkyl halides when treated with aqueous KOH forms alcohols but with alcoholic KOH forms alkene.

(ii).Sulphuric acids not used in the reaction of alcohols with KI.

(iii).Freon-12 is banned in many countries.

3 marks

Q5 Primary alkyl halide C_4H_9Br (a) reacted with alcoholic KOH to give compound (b).Compound (b) is reacted with HBr to give (c) which is an isomer of (a). When (a) is reacted with sodium metal it gives compound (d), C_8H_{18} which is different from the compound formed when n-butyl bromide is reacted with sodium. Give the structural formula of (a) and write the equations for all the reactions.

5 marks

Q6.Attempt following questions:

(i). Write the mechanism of the following reaction:

$$nBuBr + KCN \xrightarrow{EtOH-H_2O} nBuCN$$

(ii). Arrange the compounds in order of reactivity towards S_N2 displacement:

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

(iii). Out of $C_6H_5CH_2Cl$ and $C_6H_5CHClC_6H_5$, which is more easily hydrolysed by aqueous KOH?

(iv). p-Dichlorobenzene has higher m.p. and lower solubility than those of o- and m-isomers. Why?

(v). Conversion of Toulene to Benzyl alcohol?

5 marks