

CLASS - B.Sc. 2nd semester

SECTION - A

SUBJECT - CHEMISTRY

TOPIC - REVISION QUESTIONS
OF
ALKYL & ARYL HALIDES

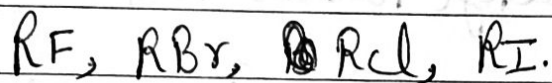
By

Prof. RANJANA SHARMA

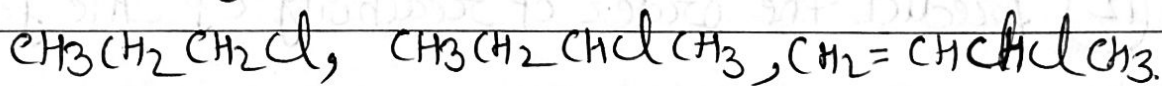
Q(1) Draw the structures of all possible alkyl halides having the formula C_4H_9Cl & write their IUPAC names.

Q(2) Haloalkanes are polar in nature, still they are insoluble in water. Explain it.

Q(3) Arrange the following in order of decreasing reactivity towards nucleophilic substitutions.

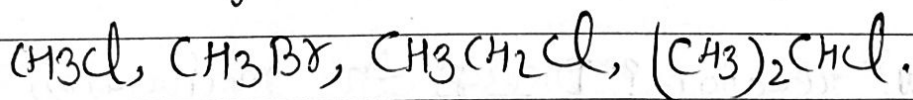


Q(4) Arrange the following in decreasing order of S_N2 reactivity.



Q(5) Arrange the following halides in order of

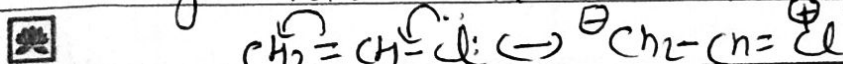
increasing S_N2 reactivity



Q(6) Which isomer of dichlorobenzene has the highest melting point and lowest solubility.

Q(7) What effect should the following resonance of

vinyl chloride have on its dipole moment?



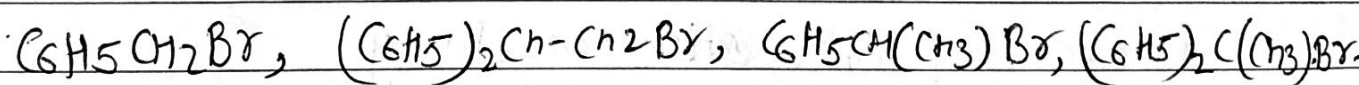
Q(8) Discuss the effect of polarity of solvent on the rates of S_N1 & S_N2 reactions.

Q(9) Why racemisation is not 100% in case of S_N1 reactions. Explain it.

Q(10) What is the difference between nucleophilicity and basicity?

Q(11) The treatment of alkyl halides with aq. KOH leads to the formation of alcohols but in the presence of alc. KOH alkenes are the major products. Explain it?

Q(12) Predict the order of reactivity of the following compounds in S_N1 & S_N2 reactions.



Q(13) What are S_N2 reactions? Discuss the mechanism & justify that S_N2 reactions proceed by inversion of configuration.

Q(14) Wurtz reaction fails in case of tert. alkyl halides. Explain it.

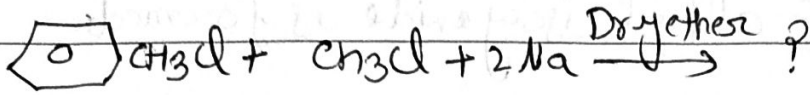
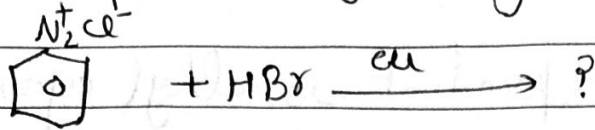
Q (15) When alkyl halide is treated with aq. alcoholic solution of KCN the major product is alkyl cyanide and trace amount of alkyl isocyanide is formed whereas an alkyl halide on treatment with AgCN gives alkyl isocyanide as major product. Explain the observed results.

Q (16) Why does nucleophilic substitution reaction of chlorobenzene take place through benzyne mechanism & *p*-nitrochlorobenzene proceeds via addition-elimination mechanism? Explain.

Q (17) Nitro group deactivates the aromatic ring towards electrophilic substitution and yet it activates the aryl halides towards nucleophilic substitution. Give reason.

Q (18) Vinyl halides are aliphatic halogen compounds but they resemble aryl halides in chemical reactivity. How do you explain it.

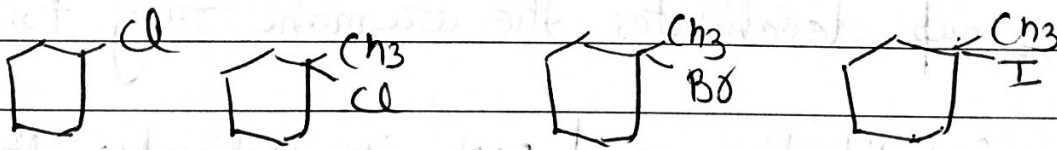
Q (20) complete the following reactions.



Q (21) Aryl halides are far less reactive than alkyl halides. Explain it.

Q (22) Write the structures of all the possible isomers of $\text{C}_7\text{H}_7\text{Cl}$ containing a benzene ring. Indicate the structure with the weakest C-Cl bond.

Q (23) Predict the order of reactivity of the following compounds towards $\text{S}_\text{N}1$ reactions.



Q (24) Which of the two chlorobenzene & cyclohexyl chloride is more reactive towards nucleophilic substitution & why?