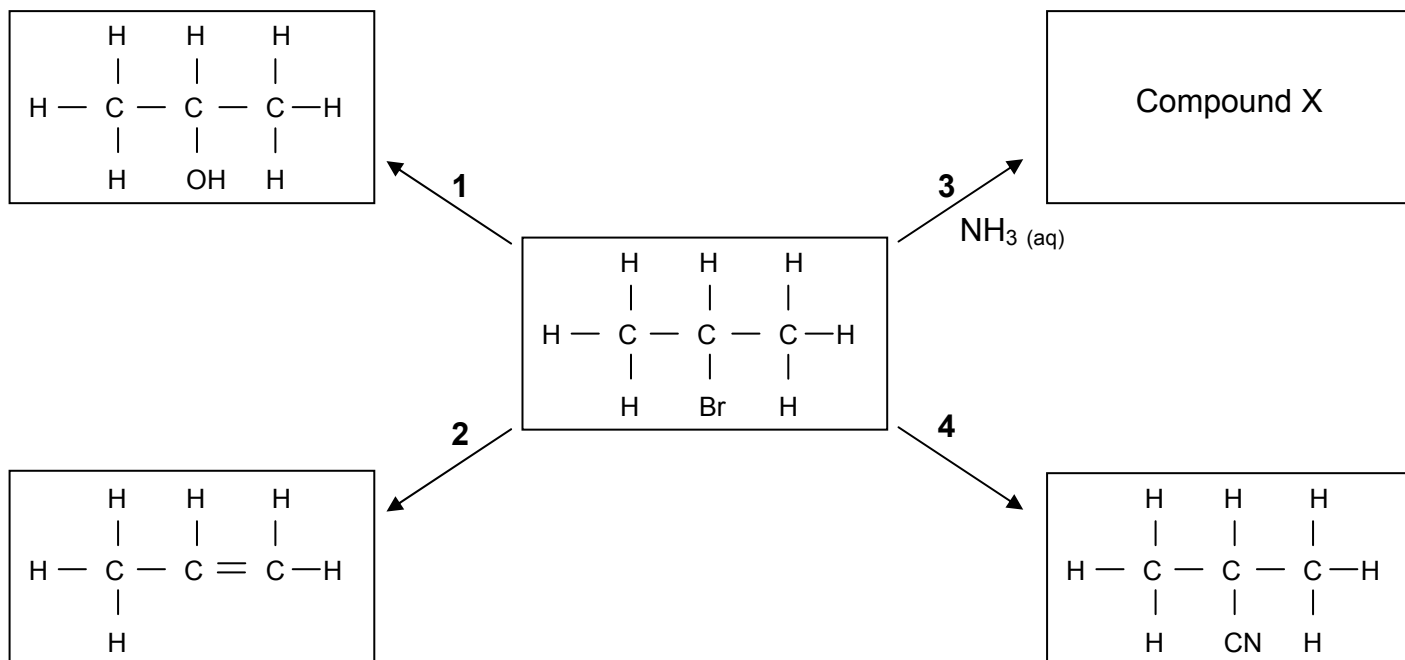


HALOALKANES - 2

2-bromopropane, like many other haloalkanes, is a useful reagent in the synthesis of other organic compounds. Several of its reactions are summarised in the reaction scheme shown below.



Answer the following questions relating to the above reaction scheme.

a) State the reagent and the conditions normally required to bring about reaction 1.

_____ (3)

b) Name the reaction mechanism which occurs during reaction 1.

_____ (1)

c) Reaction 2 often occurs simultaneously with reaction 1. Name the reaction mechanism which occurs during reaction 2.

_____ (1)

d) Suggest a change in reaction conditions which might favour reaction 2 rather than reaction 1.

_____ (1)

e) Show the mechanism for reaction 2 using curly arrows to show electron pair movements. Include any relevant lone pairs of electrons.

(3)

f) Write a balanced equation to show how 2-bromopropane reacts with **excess** ammonia solution in reaction 3. Include the structure of compound X in your equation.

(3)

g) Show the mechanism of the reaction which occurs during reaction 3.

(4)

h) State a reagent and conditions needed to bring about reaction 4.

_____ (2)

i) Name the homologous series of compounds to which the product of reaction 4 belongs.

_____ (1)

j) Explain the useful feature of reaction 4 which is of importance in organic synthesis.

_____ (1)

Total = 20 marks