Oxford Cambridge and RSA

AS Level Chemistry A

H032/01 Breadth in chemistry

Question Set 17

1. This question is about reactions involving alcohols.

(a) (i) Three reactions of an alcohol **E** are shown in **Fig. 25.1**.

Complete **Fig. 25.1** to show the structures of the organic products formed in the reactions.

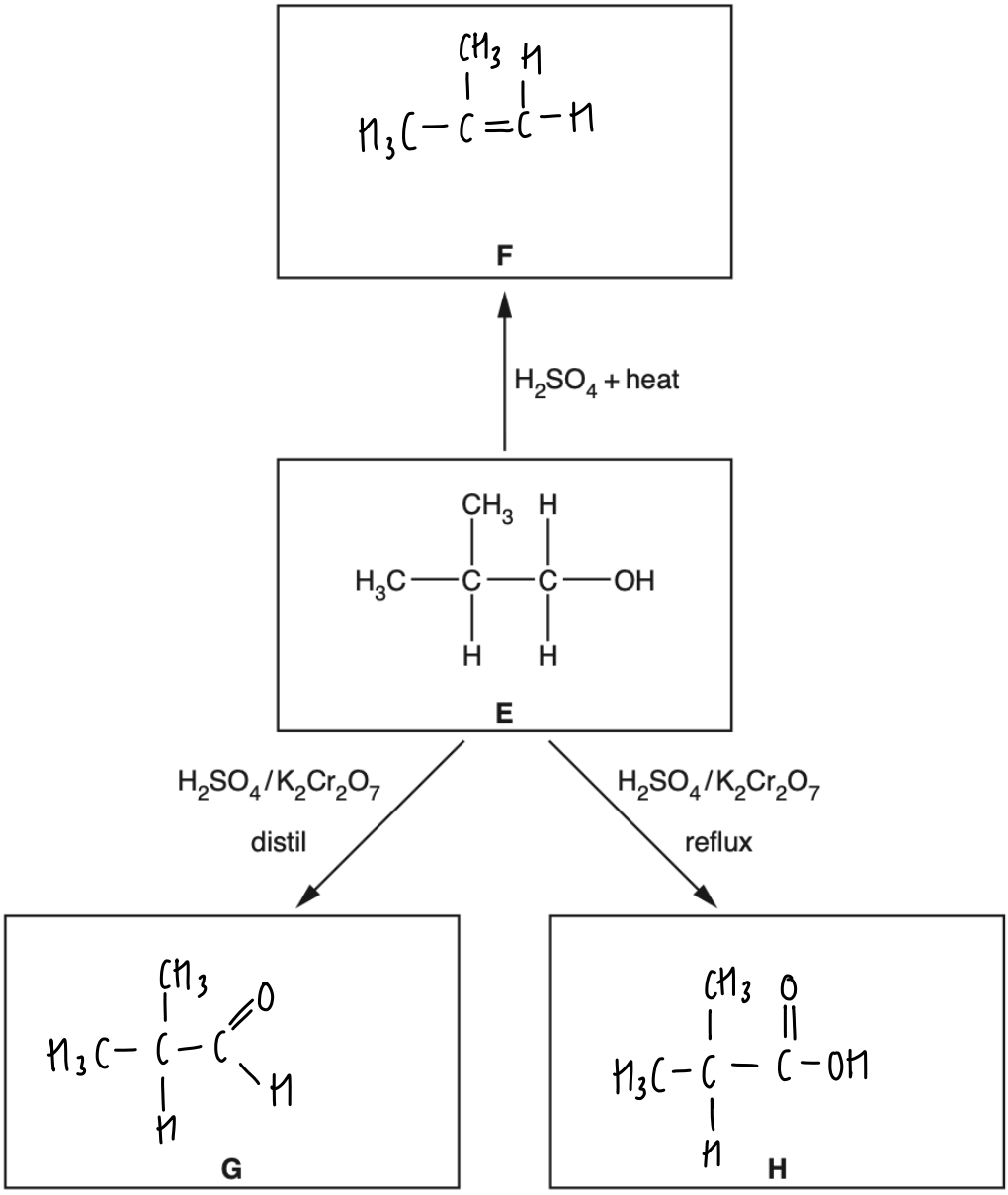


Fig. 25.1

[3]

(ii) What is the systematic name of alcohol **E**?

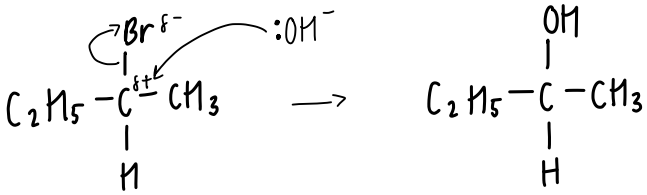
2-methylpropan-1-ol

(b) An alcohol can be prepared by hydrolysing the haloalkane $C_2H_5CHBrCH_3$ with aqueous sodium hydroxide. **[1]**

(i) Outline the mechanism for this reaction.

Show curly arrows and relevant dipoles.

[3]



(ii) The infrared (IR) spectrum for $C_2H_5CHBrCH_3$ is shown in **Fig. 25.2**.
The C–Br bond absorption is labelled.

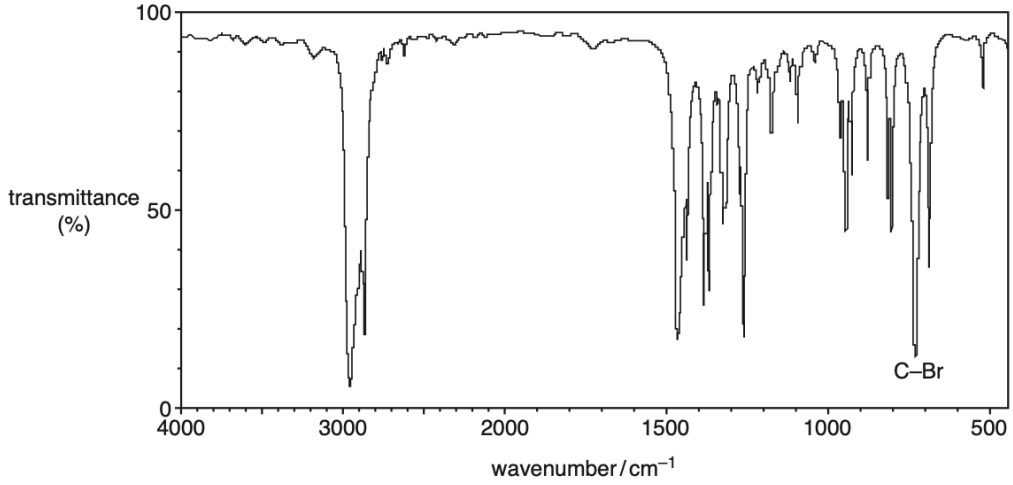


Fig. 25.2

Outline how IR spectroscopy could be used to show that the bromoalkane functional group has reacted and that the alcohol functional group has formed.

[2]

the C-Br peak would no longer be seen and a strong peak for the O-H (alcohol) group would appear at 3230 - 3550 cm^{-1}.

Total Marks for Question Set 17: 9