

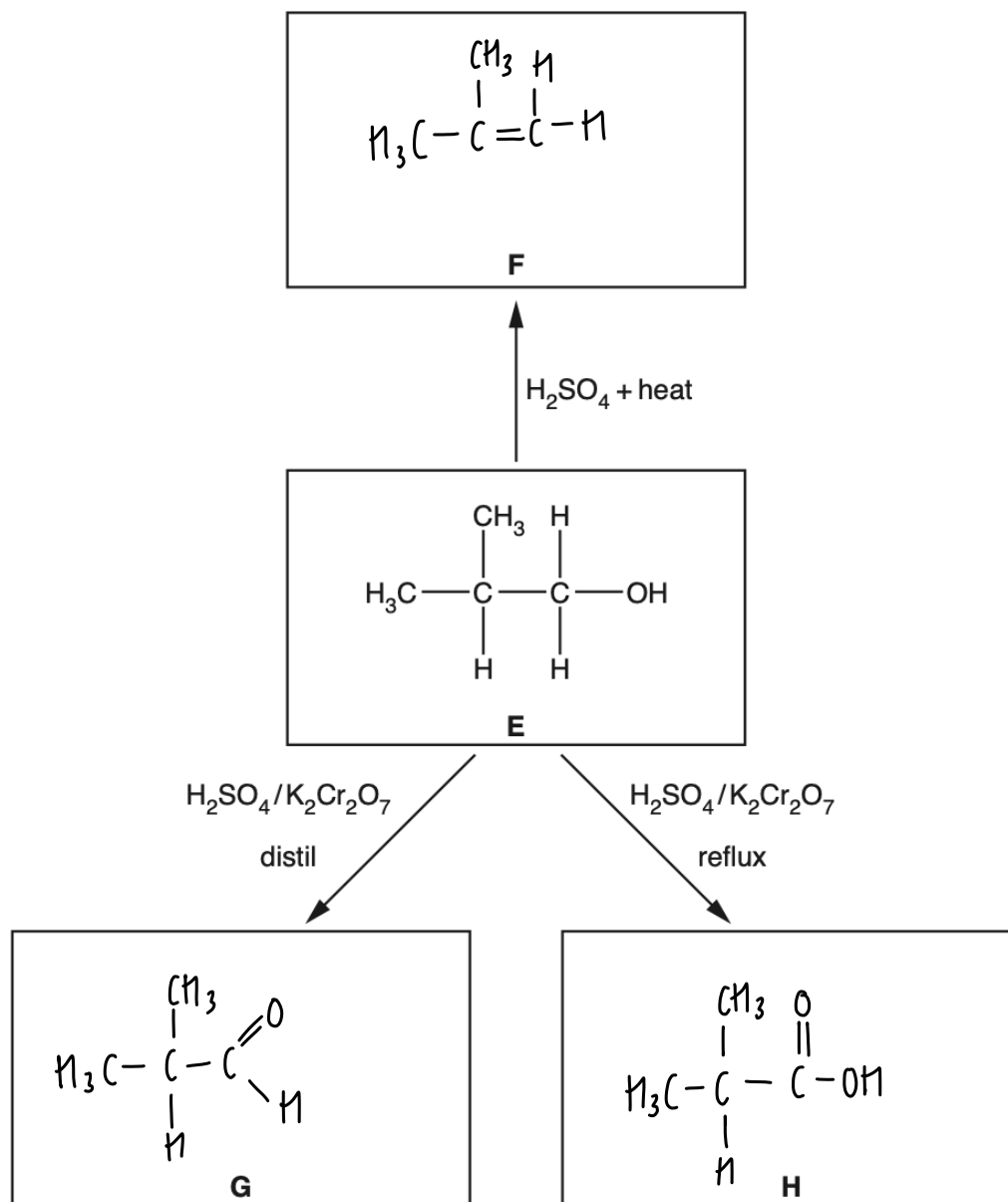
**AS Level Chemistry A**  
**H032/01 Breadth in chemistry**

**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**

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

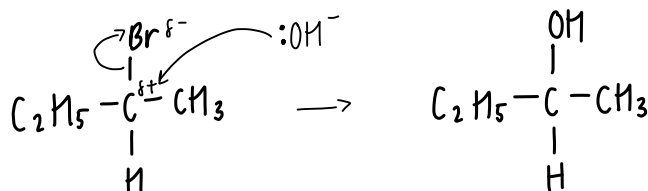
2-methylpropan-1-ol

[3]

(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.



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

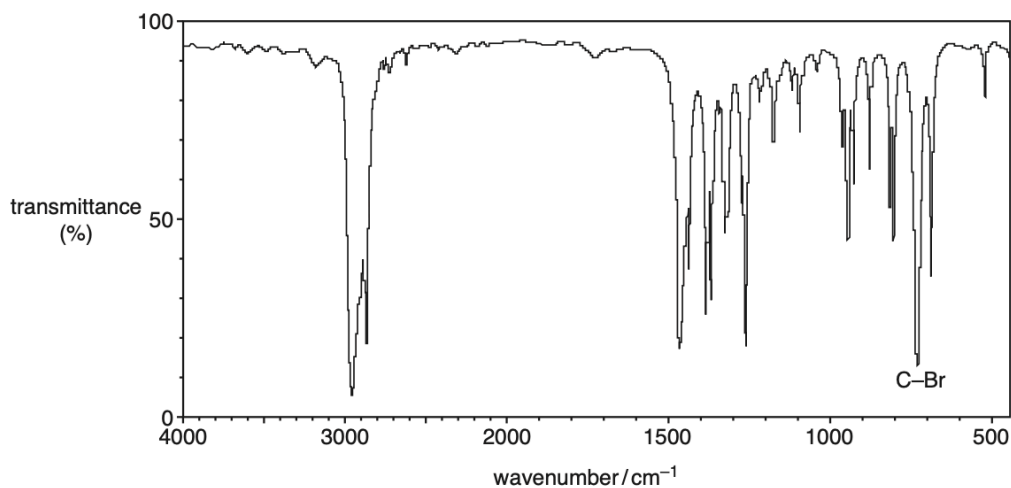


Fig. 25.2

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  $3230 - 3550\text{cm}^{-1}$ .

**Total Marks for Question Set 17: 9**

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