• Consider the following reaction sequences beginning with the carboxylic acid, E.

Н

 $\frac{H^{\oplus}}{(\text{Step i})} \qquad \boxed{\begin{array}{c} O \\ \hline \\ G \end{array}} \qquad \frac{\text{NaOH / H}_2O}{(\text{Step iii})} \qquad \boxed{\textbf{J}} \qquad + \qquad \boxed{\textbf{F}}$   $\frac{\text{LiAlH}_4 \text{ then H}^{\oplus}/\text{H}_2O}{(\text{Step iii})}$ 

Marks

6

Name compounds E and G.

## E: propionic acid

## G: methyl propionate

Propose structures for compounds F, H and J.

F CH<sub>3</sub>OH J O O

Propose a mechanism for step (ii).