Marks 4

• Butanone is treated first with lithium aluminium hydride, LiAlH₄, in dry ether and then with aqueous acid to yield the alcohol, **A**.

$$\begin{array}{c} \text{OH} \\ \text{CH}_3-\text{C}-\text{CH}_2\text{CH}_3 \\ \text{butanone} \end{array} \qquad \begin{array}{c} \text{OH} \\ \text{CH}_3-\text{C}-\text{CH}_2\text{CH}_3 \\ \text{H} \\ \end{array}$$

 $\bf A$ is treated with concentrated sulfuric acid to give mainly the alkene $\bf B$ and two other alkenes $\bf C$ and $\bf D$. Alkenes $\bf B$ and $\bf C$ are diastereomers, $\bf B$ and $\bf D$ (and $\bf C$ and $\bf D$) are constitutional isomers. Give the structures for $\bf C$ and $\bf D$ and give systematic names for $\bf B$, $\bf C$ and $\bf D$.

$ \begin{array}{c} \mathbf{B} \\ \mathbf{H}_{3}\mathbf{C} = \mathbf{C} \\ \mathbf{H} \\ \mathbf{CH}_{3} \end{array} $	C	D
Name: (<i>E</i>)-2-butene	Name: (Z)-2-butene	Name: 1-butene