

21 Organic synthesis – Part 2 —Answers

Answers

Work through these after trying the questions yourself.

21.1 Backwards, from the target.

21.2 KCN (potassium cyanide).

21.3 React it with steam (H_2O) and an H_3PO_4 catalyst (electrophilic addition).

21.4 (a) addition (also reduction) \ (b) elimination (dehydration).

21.5 Step 1: ethene + steam (H_2O) $\rightarrow$ ethanol. Step 2: oxidise ethanol with acidified $\text{K}_2\text{Cr}_2\text{O}_7$ under reflux $\rightarrow$ ethanoic acid.

21.6 Step 1: warm bromomethane with KCN in ethanol $\rightarrow$ ethanenitrile (CH_3CN), adding the extra carbon. Step 2: hydrolyse the nitrile by warming with dilute acid $\rightarrow$ ethanoic acid (CH_3COOH).