2025 Ch H1 Q7

Section: Nature's Chemistry

Topic: Esters

Question summary

Hydrolysis of an ester produced an alcohol and a carboxylic acid, each with a gram formula mass of 60 g. Identify the correct ester.

Worked solution

Hydrolysis of an ester produces an alcohol and a carboxylic acid.

The acid has a gram formula mass (GFM) of 60 -> ethanoic acid (CH_3COOH).

The alcohol has a GFM of 60 -> propan-1-ol (C_3H_7OH).

Therefore, the ester is formed from ethanoic acid and propan-1-ol -> propyl ethanoate.

The structure of propyl ethanoate is $CH_3COOCH_2CH_2CH_3$.

Final answer

B. propyl ethanoate

Revision tips

- Remember: acid + alcohol -> ester + water.

- In the ester name, the alcohol contributes the -yl part and the acid contributes the -oate part.

- Hydrolysis reverses esterification, regenerating the parent alcohol and carboxylic acid.