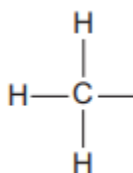


ALCOHOLS AND CARBOXYLIC ACIDS

Q1.

(a) Wine contains ethanol ($\text{CH}_3\text{CH}_2\text{OH}$).

(i) Complete the displayed structure of ethanol.



(1 mark)

(ii) Wine left in a glass for several days turns sour.
The sour taste is caused by ethanoic acid.



Complete the sentences.

The ethanoic acid is produced from a reaction between ethanol and _____.

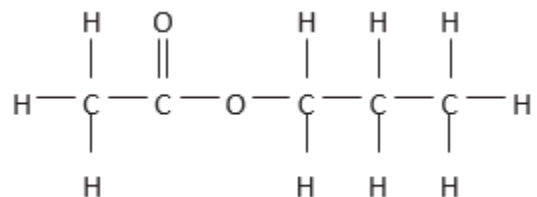
This type of reaction is _____.

(2 marks)

(b) Propyl ethanoate, a fragrance, can be produced by reacting ethanoic acid with an alcohol.

Propyl ethanoate is a member of a series of organic compounds. The members of the series all have the same functional group.

The displayed structure of propyl ethanoate is:



(i) Draw a ring around the functional group for this series on the displayed structure of propyl ethanoate.

(1 mark)

(ii) Name the series of organic compounds with this functional group.

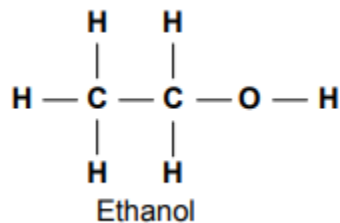
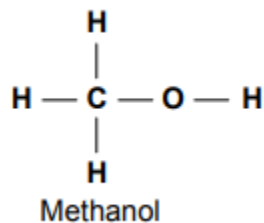
(1 mark)

(iii) The alcohol used to make propyl ethanoate has the formula $\text{CH}_3\text{CH}_2\text{CH}_2\text{OH}$.

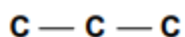
Name this alcohol.

(1 mark)

Q2. The structures shown are of the first two members of a homologous series of organic compounds.



(i) Complete the diagram for propanol, the next member of the homologous series.



Propanol

(1 mark)

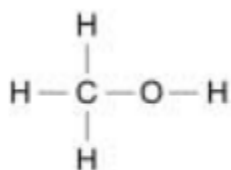
(ii) Which one of the statements about ethanol is correct?

Tick (✓) **one** box.

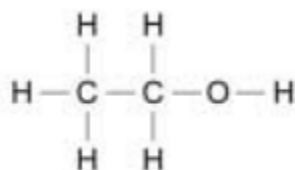
Statement	Tick (✓)
Ethanol dissolves in water to form a neutral solution.	
Ethanol reacts with sodium to produce chlorine.	
Ethanol does not burn in air.	

(1 mark)

Q3. The structures shown are of the first two members of a homologous series of alcohols.

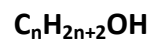
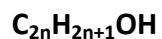
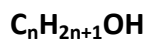


Methanol



Ethanol

(a)(i) Draw a ring around the correct general formula for alcohols.



(1 mark)

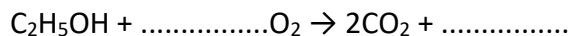
(ii) What is the formula of the functional group for alcohols?

(1 mark)

(b) Ethanol is the alcohol used in alcoholic drinks.

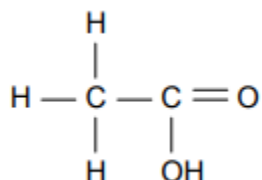
Ethanol is used as a fuel because ethanol burns in oxygen.

Complete and balance the chemical equation for this reaction.

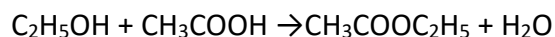


(2 marks)

(c) Ethanol can be oxidised to produce the compound shown.



Ethanol reacts with this compound to produce the organic compound shown.



Complete the sentence.

The type of organic compound produced is _____.

(1 mark)

Q4.

(a) Ethanol burns in air.

Use the correct answer from the box to complete the word equation for the reaction.

carbon	hydrogen	oxygen
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ethanol + carbon dioxide + water

(1 mark)

(b) Use the correct answer from the box to complete the sentence.

milk	hard water	vinegar
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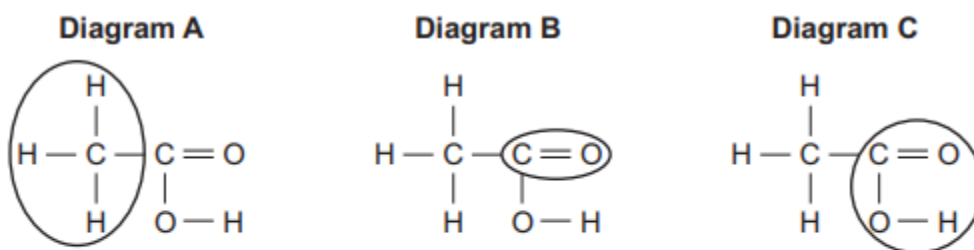
Ethanoic acid is in

(1 mark)

(c) Ethanoic acid is a carboxylic acid.

Which diagram, A, B or C, has a ring around the functional group of a carboxylic acid?

Write your answer in the box.



Diagram

(1 mark)

(d) Ethyl propanoate is produced by reacting ethanol with propanoic acid.

What type of organic compound is ethyl propanoate?

Tick (✓) **one** box.

Alcohol

Carboxylic acid

Ester

(1 mark)

(e) Organic compounds such as ethyl propanoate are used in perfumes.

Give two properties of these compounds that make them suitable for use in perfumes.

(2 marks)

Total marks (19)