

Carbon in life sample questions.

26. Table 11.1 shows some information about the homologous series of unbranched carboxylic acids.

name	structure	boiling point / °C
Methanoic acid	HCOOH	101
Ethanoic acid	CH ₃ COOH	118
Propanoic acid	CH ₃ CH ₂ COOH	141
Butanoic acid	CH ₃ CH ₂ CH ₂ COOH	164
Pentanoic acid	CH ₃ CH ₂ CH ₂ CH ₂ COOH	186

(a) One of the characteristics of a homologous series is that it has a general formula.

(i) Deduce the general formula for the homologous series of unbranched carboxylic acids.

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(ii) Describe two other characteristics of a homologous series.

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(b) An aqueous solution of propanoic acid is a weak acid. Define the term acid.

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(c) Butanoic acid reacts with ethanol to make an ester.

State the name of the ester made and draw the displayed formula of the ester linkage.

Name

Displayed formula

(d) Ethanoic acid is a liquid at room temperature. Describe the changes in the arrangement and movement of the molecules of ethanoic acid when it is heated from room temperature to 120 °C.

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(e) Calcium reacts with ethanoic acid. The products are calcium ethanoate and hydrogen. Construct the equation for this reaction.

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(f) Ethanoic acid reacts with butanol, C₄H₉OH, to produce an ester.

@desmond yesigwasample.....

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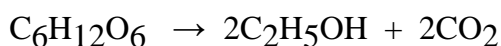
(i) Name the ester formed when ethanoic acid reacts with butanol.

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(ii) Draw the structure of this ester.

33.(a) Ethanol can be manufactured by two different methods.

Method 1: fermentation of a sugar, $C_6H_{12}O_6$



Method 2: reaction of ethene with steam



(i) Give one advantage of using fermentation compared with Method 2.

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(ii) Give one disadvantage of using fermentation compared with Method 2.

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(b) Ethanol reacts with methanoic acid to form an ester.

(i) Name the ester formed in this reaction.

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(ii) Draw the structure of the ester formed.

Show all of the atoms and all of the bonds.

32. Alcohol is one of the most used organic substance . It's highly used in hospitals , homes and luxurious sectors suchas hotels. The commonest alcohol is ethanol which is naturally prepared by fermentation of sugars (starch) like cassava . Akankunda is preparing for a beer party in the village during the festive season as a gesture of togetherness and preservation of the African culture .

Task : Using the knowledge accumulated in your daily life and in the chapter of carbon in life , describe how she can prepare a local brew of any type to be used during the beer party . In your description , include the materials to use , the steps to take , explanations for some of the steps and precautions taken to prepare the local brew. [15marks]