Knowledge check

Subject area: Organic chemistry | **Level: 14–16 years (Higher)**

Topic: Reactions of carboxylic acids | **Source: rsc.li/3o4cneK**

1. **Below are some statements about carboxylic acids.**

   However, there are some mistakes.
   Mark each statement, correct or incorrect. For the incorrect statements give the correct answer.

a) A carboxylic acid contains the -OH functional group.

b) The names of carboxylic acids all end in -oic acid.

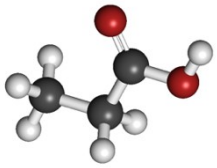
c) The first part of the name tells you how many hydrogen atoms are present in the molecule.

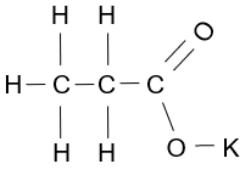
d) The letters -an- link the prefix to the -oic acid ending.

e)

Number of carbon atoms	Prefix
1	Meth-
2	Prop-
3	Eth-
4	But-

f) The molecule below is called ethanoic acid.

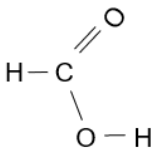




2. George is asked by his teacher to draw out the structure of ethanoic acid.

He gives four possible structures, but only one is correct.
Which one is correct?

A



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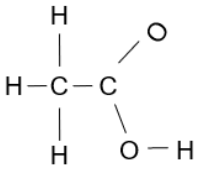

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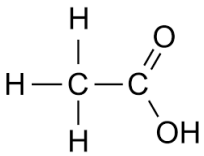

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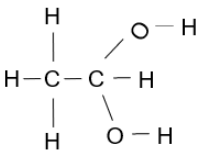

3. Alan and Michelle carry out some experiments using ethanoic acid, and test for any gases formed.

The chemical formulae of the substances added are in the left-hand boxes.
Their observations are on the right-hand side.
Draw straight lines to link the substance with the correct gas test.

Formula of substance being added	Observation
Mg	A gas forms that turns limewater milky
Na_2CO_3	No gas forms
NaOH	A gas that forms a squeaky pop with a lighted splint

4. This question is about the acidity of ethanoic acid solution.

Complete the spaces.

a) Carboxylic acids dissolve in water to produce a _____ acidic solution.

b) When they dissolve they partially or slightly _____ to produce _____ ions.

c) Universal indicator turns _____ when added to a solution of ethanoic acid.

d) The pH of a solution of ethanoic acid is normally about _____.

e) The equation to show ethanoic acid's reaction in water is:

$CH_3COOH \rightleftharpoons$ _____ + _____