

1. Some people have warts on their skin.



Warts can be removed by treating them with a corrosive solution of acids.

Methanoic acid is another acid in the medicine.

HCOOH
methanoic acid

CH₃COOH
ethanoic acid

Ellen says that she thinks that methanoic acid and ethanoic acid have the same empirical formula.

Do you agree with Ellen?

Explain your answer by comparing the empirical formula of each acid.

[3]

2. The table shows the names, number of carbon atoms and molecular formula of some alkanes.

Alkane	Number of carbon atoms	Molecular formula
methane	1	CH ₄
ethane	2	C ₂ H ₆
pentane	5	C ₅ H ₁₂
heptane	7	C ₇ H ₁₆

What is the name of the alkane in the table which has the empirical formula CH₃?

Explain your reasoning.

Name -----

Reason -----

----- [2]

END OF QUESTION PAPER

Question			Answer/Indicative content	Marks	Guidance
1			(no because....) empirical formula of methanoic acid is CH_2O_2 ✓ empirical formula of ethanoic acid is CH_2O ✓ ratio of oxygen atoms is different / more oxygen (by proportion) in methanoic acid ✓	3	
			Total	3	
2			ethane ✓ ratio C:H is 2:6 therefore empirical ratio of C:H is 1:3 ✓	2	
			Total	2	