

Give **one** reason why this process is used in industry.

Name _____

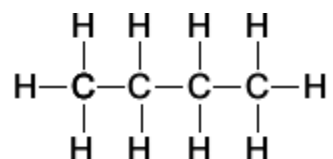
Reason _____

(2)

- (iii) State why high temperatures are needed for this process.

(1)

- (d) Compound **X** can be converted into compound **Y**.
Compound **Y** is shown below.



- (i) Suggest the formula of a reagent that could be added to **X** in order to convert it into **Y**.

(1)

- (ii) Give **one** use of **Y**.

(1)

- (iii) Write an equation to show the reaction of **Y** in a limited supply of air to produce a solid and water only.

(1)

- (iv) When a sample of **Y**, contaminated with CH_3SH , is burned completely in air, a toxic gas is formed.
Identify this toxic gas and suggest a compound that could be used to remove the toxic gas from the products of combustion.

Toxic gas _____

Compound used to remove toxic gas _____

(2)

- (v) Suggest the name of the process that occurs when the toxic gas in part (d)(iv) is removed.

(1)

(e) Explain why the boiling points of **X** and **Y** are similar.

(2)

(Total 16 marks)