



Oxford Cambridge and RSA

GCSE Chemistry B (Twenty First Century Science)

J258/04 Depth in chemistry (Higher Tier)

Question Set 15

1. The repeating unit of some polymers has the structure shown in **Fig. 4.1**.

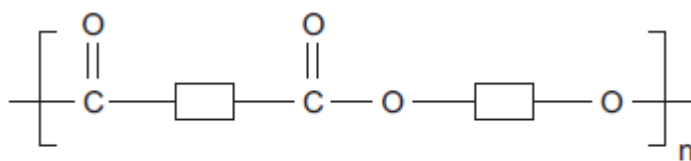


Fig. 4.1

- (a) What is the name for this type of polymer?

Put a (ring) around the correct answer.

addition **polyamide** **polyamine** **polyester** **oxidised** [1]

- (b) One repeating unit of the polymer can be broken down by a reaction with water into its monomers, **molecule A** and **molecule B**, as shown in **Fig. 4.2**.

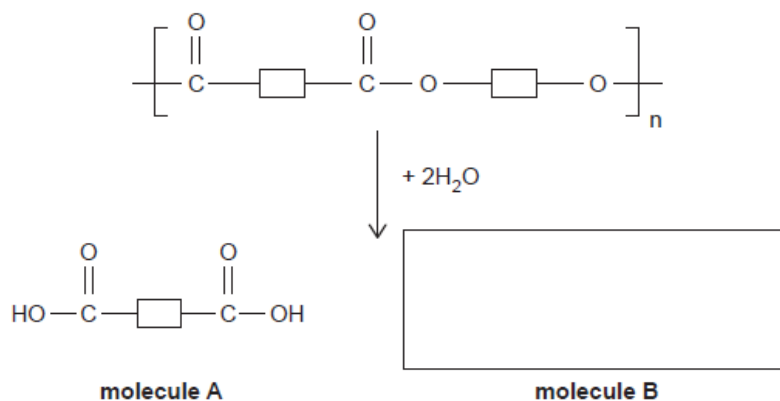


Fig. 4.2

- (i) Complete the diagram in **Fig. 4.2** by drawing the structure of **molecule B**. [1]
- (ii) The polymer was originally made by reacting monomers, **molecule A** and **molecule B**, together.

How is the reaction to make the polymer different from the reaction in **Fig. 4.2**?

Explain your answer. [2]

- (iii) Explain why **molecule A** is called a **dicarboxylic acid**. [2]

(c) PET is a type of polymer used to make drinks bottles.

PET has the repeating unit shown in **Fig. 4.3**.

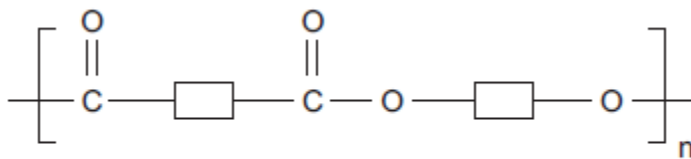


Fig. 4.3

In molecules of PET, represents C₂H₄.

The average relative formula mass of polymer molecules in a sample of PET is 55 000.

How many repeating units does each polymer molecule contain?

Give your answer to the **nearest whole number**.

Number of repeating units = [2]

Total Marks for Question Set 15: 8

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