Worksheet 11.3

Condensation polymers

1 Condensation polymerisation is a major chemical process for making long-chain polymers both in nature and in industry.

a What is the key difference between condensation polymerisation and addition polymerisation?

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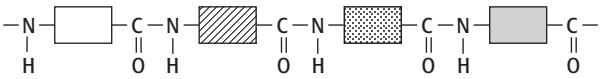
b Starch is a condensation polymer of glucose. The glucose molecule can be represented as:

Draw the structure of starch showing the linking atoms.

c Nylon is a man-made polyamide that has certain structural similarities to protein chains in that the linkages in the chains are the same (the amide or peptide link). Examine the following diagram of a polyamide chain and deduce whether it is a nylon chain or a protein chain.



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d **i** Name a polyester.

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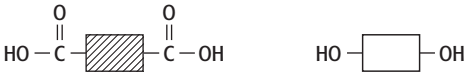
ii Using the representations of the monomers shown below, draw the structure of a polyester chain.



2 Protein chains can be analysed after they have been broken down into their constituent monomers.

a What type of monomers are polymerised to make proteins?

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b How are protein chains broken down to their monomers before analysis?

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c What is the name given to this type of breakdown of molecules?

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d What method can be used to analyse the products of the breakdown of the protein chains?

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