

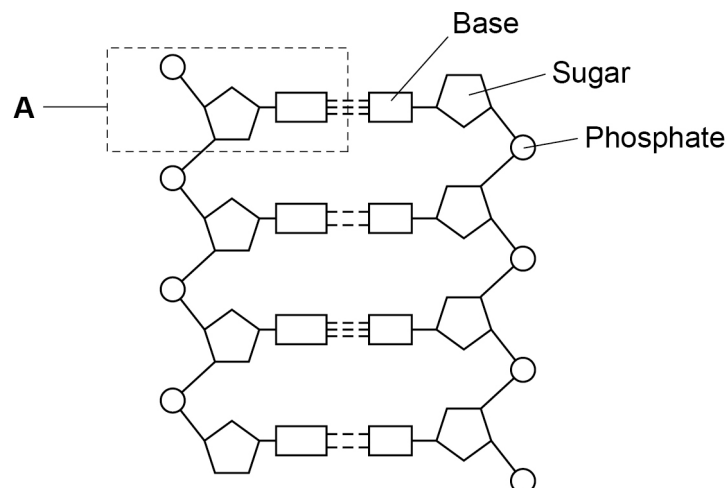
0 7

This question is about DNA.

0 7 . 1

Describe the shape of a DNA molecule.

[2 marks]

Figure 10 shows part of a DNA molecule.**Figure 10**

0 7 . 2

DNA codes for a sequence of amino acids.

Which part of DNA forms the code for a particular amino acid?

[1 mark]Tick (✓) **one** box.

Bases

Phosphates

Sugars



0 7 . 3 Which substance is produced when amino acids are joined together?

[1 mark]

Tick (✓) **one** box.

Carbohydrate

Fat

Protein

0 7 . 4 DNA is made of repeating units. One of the units is labelled **A** in **Figure 10**.

What is the name of the repeating unit labelled **A**?

[1 mark]

Tick (✓) **one** box.

Chromosome

Enzyme

Nucleotide

Question 7 continues on the next page

Turn over ►



07.5 The DNA in one human body cell is the length of 6 000 million repeating units (part **A**).
Each repeating unit is 0.34 nanometres (nm) long.

Calculate the length of the DNA in the cell in millions of nanometres.

[2 marks]

Length = _____ million nm

07.6 Give your answer to Question **07.5** in metres.

1 metre = 1×10^9 nanometres

[1 mark]

Length = _____ m

07.7 DNA analysis can show people which alleles they have.

Patients who have certain types of cancer can be offered DNA analysis.

The family of the patient can also be offered DNA analysis.

Suggest **one** advantage of having DNA analysis.

[1 mark]



Question	Answers	Extra information	Mark	AO / Spec. Ref.
07.1	any two from: <ul style="list-style-type: none"> • double • helix • long / thin 	allow two strands allow twisted / spiral / coiled	2	AO1 4.6.1.4
07.2	bases		1	AO1 4.6.1.5
07.3	protein		1	AO1 4.6.1.4 4.6.1.5
07.4	nucleotide		1	AO1 4.6.1.5
07.5 mark with 07.6	0.34 × 6 000 2040 (million nm)		1 1	AO2 4.6.1.4 4.6.1.5
07.6 mark with 07.5	answer from question 07.5 correctly converted	if no answer to question 07.5 , allow 2.04 (m)	1	AO2 4.6.1.4 4.6.1.5
07.7	any one of: <ul style="list-style-type: none"> • to determine if the cancer is genetic (or caused by lifestyle factors) • to inform / help treatment • to allow embryo screening to ensure allele is not passed on • to inform relatives if they have inherited (affected) gene / allele • to detect cancer early or before symptoms show • to understand cause of the cancer 		1	AO3 4.6.1.7 4.2.2.7
Total			9	