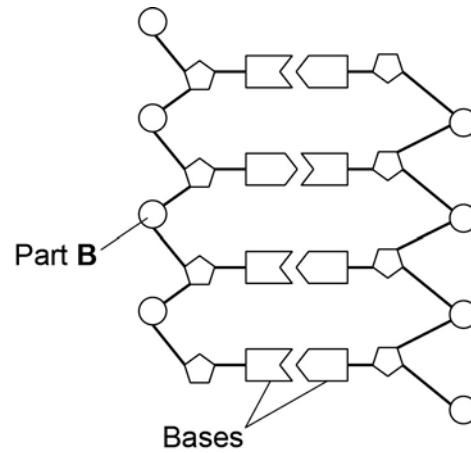


0 7**Figure 8** shows an image of a small section of DNA.**Figure 9** shows the structure of a small section of DNA.**Figure 8****Figure 9****0 7 . 1**What is **Part B**?**[1 mark]**

0 7 . 2In **Figure 8** the structure of DNA shows four different bases.

There are four different bases and they always pair up in the same pairs.

Which bases pair up together?

[1 mark]

Question 7 continues on the next page

0 7 . **4** A recessive allele causes syndrome H.

A heterozygous woman and a homozygous recessive man want to have a child.

Draw a Punnett square diagram to determine the probability of the child having syndrome H.

Identify any children with syndrome H.

[5 marks]

Use the following symbols:

A = dominant allele

a = recessive allele

Probability = _____

Turn over for the next question

Question 7

| Question | Answers | Extra information | Mark | AO / Spec. Ref. |
|----------|---|---|------------------------------|--|
| 07.1 | phosphate | allow PO_4^{3-} do not allow P | 1 | AO1/1 4.6.1.5 |
| 07.2 | A / adenine and T / thymine and C / cytosine and G / guanine | do not allow U / uracil | 1 | AO1/1 4.6.1.5 |
| 07.3 | (mutation) changes from C to T DNA code or there is a change in the three bases / triplet from CAG to TAG (mutation) changes the amino acid (this could) change the protein (so it) forms a different shape / changed active site (therefore) the enzyme no longer fits the substrate / carbohydrate | accept different tertiary structure | 1 1 1 1 | AO2/1 4.6.1.5 AO1/1 4.6.1.5 AO1/1 4.6.1.5 AO1/1 4.6.1.5 |

Question 7 continues on the next page

Question 7 continued

| Question | Answers | Extra information | Mark | AO / Spec. Ref. |
|--------------|---|---|-----------|-------------------|
| 07.4 | mother / woman's gametes correct: A a | | 1 | AO2/2 4.6.1.6 |
| | father / man's gametes correct: a a | | 1 | AO2/2 4.6.1.6 |
| | correct derivation of offspring | ecf | 1 | AO2/2 4.6.1.6 |
| | identification of child with syndrome H or genotype aa | | 1 | AO2/2 4.6.1.6 |
| | 0.5 | ecf allow 50% / 1/2 / 1 in 2 / 1:1 do not accept 1:2 | 1 | AO3/2b 4.6.1.6 |
| Total | | | 12 | |