AQA Examination-style questions

Chapter 10 The variety of life

1 Haemoglobin is a protein

(a) What is meant by the quaternary structure of a protein? *(1 mark)*

(b) The tertiary structure of haemoglobin allows it to carry oxygen. Explain how. *(2 marks)*

2 **Figure 1** shows dissociation curves for haemoglobin in a fetus and in an adult.

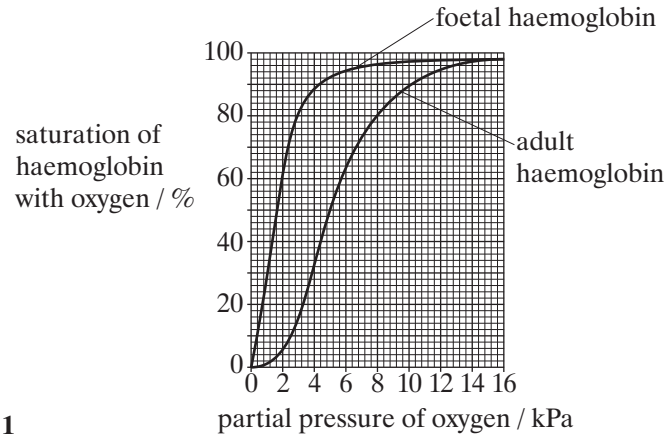

Figure 1

(a) (i) What is the difference in percentage saturation between fetal haemoglobin and adult haemoglobin at a partial pressure of 3 kPa?

(ii) Explain the advantage of the curve for fetal haemoglobin being different from the curve for adult haemoglobin. *(3 marks)*

(b) The dissociation curve for adult haemoglobin changes during vigorous exercise.

(i) On a copy of the graph, sketch the position of the curve during vigorous exercise.

(ii) Explain the advantage of this change in position. *(3 marks)*

AQA, 2004

3 **Figure 2** shows the oxygen haemoglobin dissociation curves for three species of fish.

(a) Species **A** lives in water containing a low partial pressure of oxygen. Species **C** lives in water with a high partial pressure of oxygen. The oxygen haemoglobin dissociation curve for species **A** is to the left of the curve for species **C**. Explain the advantage to species **A** of having haemoglobin with a curve in this position. *(3 marks)*

(b) Species **A** and B live in the same place but **B** is more active. Suggest an advantage to **B** of having an oxygen haemoglobin dissociation curve to the right of that for **A**. *(2 marks)*

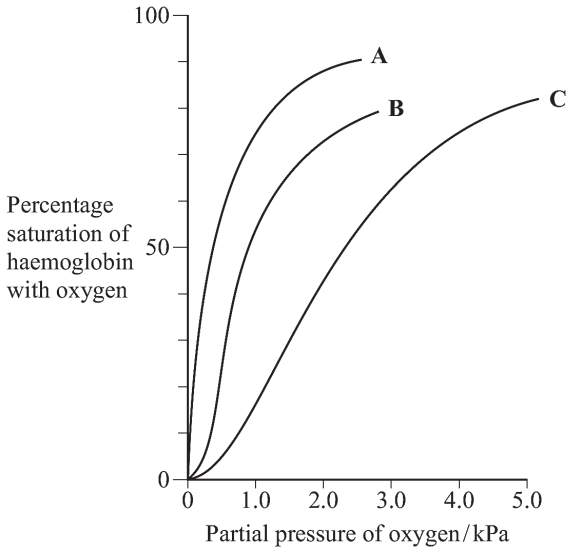

Figure 2

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4 Cellulose is made from one type of monomer. The monomers are held together by bonds. **Figure 3** shows parts of three cellulose molecules in a cell wall.

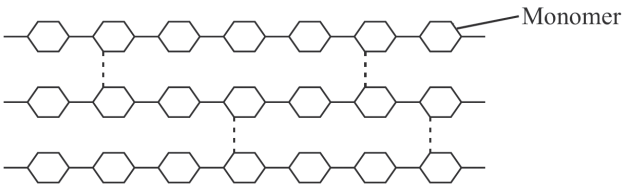

Figure 3

(a) Name the monomer present in cellulose. *(1 mark)*

(b) Name the type of reaction that converts cellulose to its monomers. *(1 mark)*

(c) Cotton is a plant fibre used to make cloth. Explain how cellulose gives cotton its strength. *(3 marks)*

AQA, 2006

5 **Figure 4** shows a section through a leaf.

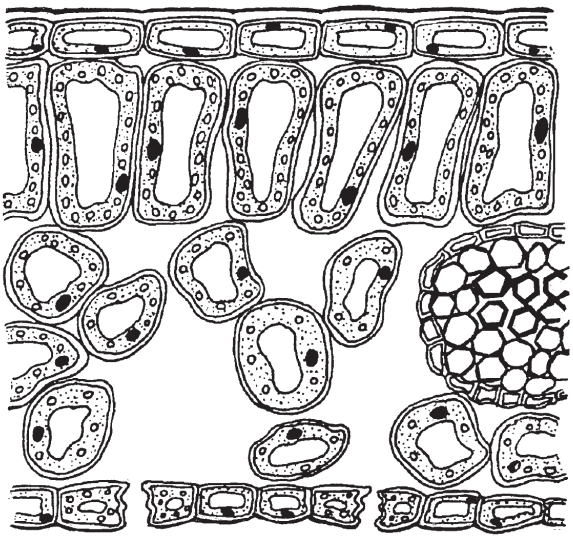

Figure 4

(a) Name **three** structures present only in plant cells. *(1 mark)*

(b) Explain how water enters a root hair cell. *(2 marks)*

AQA, 2003