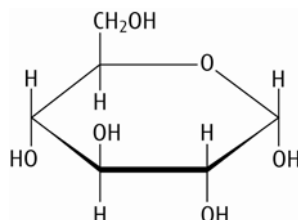


Exemplar exam question – Option B

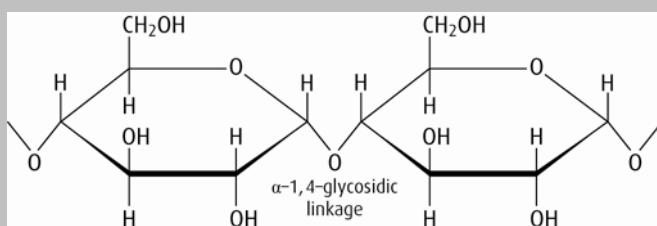
- 1** This question is about some biologically important molecules.
- a** The structure of glucose is shown below. Draw diagrams to show how glucose monomers are linked together in the structures of amylose and cellulose. [2]



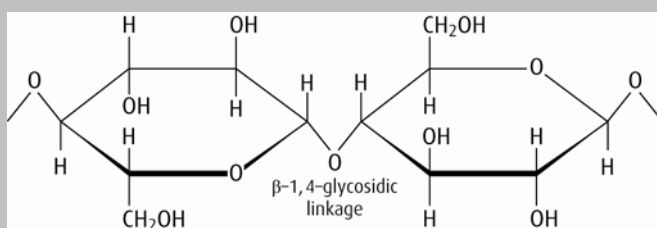
- b** Explain why humans can digest starch but not cellulose. [1]
- c** State one difference between the composition of HDL and LDL. [1]
- d** The structures of cholesterol and some sex hormones are shown in the data booklet. Compare the structures of these molecules. [3]

Commentary

- a** amylose [1]



- cellulose [1]



Each structure should be labelled so that it is clear which is which.

- b** Humans do not possess the enzyme cellulase. [1]
- c** HDL contains more protein than LDL. [1]

Note that the question in part **c** uses the action verb 'state'. Therefore, this is all that must be done.

Also, note that part **c** asks about composition. This means that answers such as 'HDL has higher density' or 'HDL is smaller' would not answer the question.

d They all contain the steroid backbone/three six-membered rings and a five-membered ring. [1]

They contain different functional groups. [1]

The question in part **d** asks you to 'compare' and so similarities and differences should be mentioned. The answer should also refer to both types of molecule.

The third mark in part **d** is likely to be for specific differences between the functional groups.

Examples of possible answers are:

cholesterol contains an alcohol and an alkene functional group but estradiol contains a phenol and alcohol group or progesterone contains a ketone, etc. [1]