InkBiology

QUESTION WORKBOOK

Carbohydrates: from one sugar to a store of thousands

Biological molecules, water and inorganic ions · Unit B02

AQA 3.1.1, 3.1.2 · OCR A 2.1.2 · CAIE 2.1, 2.2

8 questions · 25 marks

NAVY SCREEN EDITION

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SECTION A · Short, 1 to 2 marks

A1 State what is meant by a monosaccharide, and state the molecular formula of glucose. [2]

A2 Name the bond formed when two monosaccharides are joined together, and name the two monosaccharides that make up sucrose. [2]

SECTION B · Standard, 3 to 5 marks

B1 Describe the structure of a molecule of starch. [4]

B2 Cellulose and amylose are both unbranched polysaccharides of glucose. Explain how the structure of cellulose makes it suitable for its role in a plant cell wall. [4]

B3 A colorimeter is available. Describe how you would find the concentration of reducing sugar in a fruit juice. [4]

B4 One molecule of glycogen was built from 2,400 molecules of α-glucose. Taking the relative molecular mass of water as 18, calculate the total relative mass of the water released while that molecule was assembled. [3]

B5 Compare the structure of glycogen with the structure of amylose. [3]

B6 A student adds Benedict's solution to a solution of a carbohydrate and heats it in a water bath. The mixture stays blue. Suggest why this result does not show that the solution contains no carbohydrate, and suggest what the student should do next. [3]